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ALTERNATIVE REMEDIAL CONTRACTS STRATEGY

REGION VI, VII, VIII

VOLUME I
ENVIRONMENTAL PRIORITIES INITIATIVE
PRELIMINARY ASSESSMENT FOR
GENERAL MOTORS ASSEMBLY CENTER
WENTZVILLE, MISSOURI
EPA ID NO. MOT300010261

TECHNICAL SUPPORT ACTIVITIES
FY 92
WORK ASSIGNMENT NO. 47-7JZZ
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PREPARED BY
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ENVIRONMENTAL PRIORITIES INITIATIVE PRELIMINARY ASSESSMENT SUMMARY OF RECOMMENDATIONS GENERAL MOTORS WENTZVILLE ASSEMBLY CENTER WENTZVILLE, MISSOURI EPA ID No. MOT300010261

No evidence of environmental releases from the SWMUs was recorded in the file information, or observed during the VSI; therefore, site sampling is not recommended at this time. This facility appears to be in compliance with all environmental regulations. No unremediated releases to the environment, with the exception of the gasoline release, are known to have occurred or are believed to have the potential to occur in the near future. Review of the gasoline release remediation by the Missouri Department of Natural Resources, including review and statistical analysis of analytical data, is recommended, as planned. No other action is recommended at this facility.

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EXECUTIVE SUMMARY

A Visual Site Inspection (VSI) and a Preliminary Assessment (PA) were conducted by Jacobs Engineering Group Inc. (Jacobs), on behalf of the U.S. Environmental Protection Agency (EPA) Region VII, at the General Motors Wentzville Assembly Center, on December 11, 1991. The General Motors Wentzville Assembly Center is at 1500 East Route A, Wentzville, Missouri, in St. Charles County. Although the facility holds interim status as a treatment, storage, and disposal (TSD) facility, it has submitted an interim closure plan to terminate its interim status such that it will hold generator status only. The facility conducts the assembly of passenger automobiles. Operations at the General Motors Wentzville Assembly Center began in 1983. The general processes which produce waste are auto assembly, general maintenance, body washing, auto painting, wastewater treatment, stormwater management, and power generation.

Auto body assembly involves the use of spot and fusion welding processes, and final assembly is accomplished using metal fasteners. Various types of refuse are generated during the assembly process. These wastes are managed at satellite accumulation areas which collect hazardous waste, general refuse collection areas, and Safety Kleen parts washers. The assembled auto bodies are run through a seven-step wash process prior to being painted. Following the body washing process, the auto bodies are sent through the 80,000-gallon ELPO dip tank. In this tank pre-primer anti-corrosion paint is applied using an electrodisposition plating process. Pre-primed auto bodies are painted at the six central paint booths. Water circulated through the six central paint booths flows to one of two 800,000-gallon pits at the paint sludge building. Paint sludge solids are floated in the paint sludge building pits. The solids are dewatered and the filter is continuously passed into a roll-off box. The wastewater treatment plant receives process wastewater from throughout the facility, including the paint sludge building. Wastes generated by the wastewater treatment process include grit separator sludge and filter press sludge. All drummed wastes generated at the facility are sent to and managed at the drum storage pad prior to shipment to an off site disposal facility using an approved transporter. Approximately 2400 drums per year are managed at the drum storage pad.

Stormwater runoff from the plant property drains to the retention pond inlet control structure which directs the flow into the stormwater retention ponds. An NPDES-regulated outfall from each pond discharges to an unnamed tributary to Peruque-Dardenne Creek which flows to Lake St. Louis. Stormwater runoff is also collected at an unlined collection pond at one end of the coal storage pad.

Twenty-one Solid Waste Management Units (SWMUs) and two Areas of Concern (AOCs) have been identified at this facility. The SWMUs identified are:

- Safety Kleen Parts Washers
- Body Washer Dip Tank
- Phosphate Wash
- 4. ELPO Dip Tank
- 5. Waste Purged Thinner Tank
- Paint Sludge Pits
- 7. Paint Sludge Filter
- 8. Clearcoat Operation at Paint Booths
- 9. Satellite Paint Booths
- 10. Grit Separator

- 11. Waste Oil Tank
- 12. Filter Presses
- 13. Stormwater Retention Ponds
- 14. Coal Pile Runoff Pond
- 15. Fly Ash Silo
- 16. Drum Storage Pad
- 17. Salvage and Reclamation Yard
- 18. Trash Dock
- 19. Roll-off Box Accumulation Area
- 20. Underground Storage Tank at Stormwater Retention Ponds
- 21. Underground Storage Tank at Tank Farm

All of these SWMUs remain active with the exception of SWMU Numbers 20 and 21, the underground storage tanks.

The two areas of concern are the ELPO material spill and the gasoline release areas. Both of these releases occurred in late 1984 and have been remediated. The gasoline release remediation involved injection, recovery, and venting with bacteriological enhancement. Nine injection wells, nine recovery wells, a groundwater treatment facility for recovery of gasoline from under the assembly plant, seventeen observation wells and nine vent wells were installed. The final step of the remediation completion involves eight quarters of quarterly confirmatory groundwater monitoring, to be completed in July 1992.

No threatened or endangered species are known to occur within one-half mile of the facility or within a 15-mile downstream distance of the facility. No critical habitats or sensitive environments are on or within one-half mile of the facility. No aquatic critical habitats or sensitive environments are within a 15-mile downstream distance of the GM facility.

1.0 INTRODUCTION

A Visual Site Inspection (VSI) and a Preliminary Assessment (PA) were conducted by Jacobs Engineering Group Inc. (Jacobs), on behalf of the U.S. Environmental Protection Agency (EPA) Region VII, at the General Motors Wentzville Assembly Center at 1500 East Route A, Wentzville, Missouri, on December 11, 1991. Jacobs performed these tasks as a part of the EPA Environmental Priorities Initiative/Preliminary Assessment (EPI/PA), Work Assignment Number 47-73ZZ.

1.1 Objective

The objective of the EPI/PA program was to conduct on site and cursory off site inspections of the General Motors Wentzville Assembly Center in order to characterize Solid Waste Management Units (SWMUs), associated releases, and other Areas of Concern (AOCs). The goal of the inspection is to determine whether a release has occurred or has the potential to occur, to identify any immediate threats to human health or the environment from an actual or potential release, to inventory SWMUs, and to determine if a site has the potential to be placed on the National Priorities List (NPL) based on the PA scoresheet (Revised Hazard Ranking System). The PA scoresheet for the site has been provided as Volume II of this report.

1.2 Scope of Work

The scope of this investigation included the following activities:

- A search of federal and state files to obtain and review all available and pertinent documents that provide background information regarding historic and current facility processes and hazardous waste management practices;
- o Development of a detailed site base map to scale including site features, SWMU and AOC locations;
- o Evaluation of potentially affected populations within a four-mile radius from the site with regard to groundwater and air, and within a 15-mile downstream distance for surface water;
- o A well survey within a four-mile radius of the site; and
- Photo-documentation of all SWMUs and related releases and exposure pathways.

2.0 SITE DESCRIPTION

2.1 Site Location

The General Motors Wentzville Assembly Center is at 1500 East Route A, Wentzville, Missouri, in St. Charles County (Figure 1). The facility is between Gilmore and Edinger Roads. U.S. Geological Survey topographic map coordinates for the site are 38° 48' 22" North latitude and 90° 49' 13" West longitude. The legal description of the site is Section 20, Township 47 North, Range 2 East.

2.2 Site Features

The General Motors Wentzville Assembly Center began operations in 1983. The facility was newly constructed at that time, on land which had previously been farmland, and no structural changes have occurred since construction. The facility occupies approximately 400 acres of Section 20, Township 47 North, Range 2 East. The production area in the main plant building occupies 78 acres (Appendix I). Two stormwater retention ponds are east of the main plant building (Figure 2). To the south of the main building are various structures including the paint sludge building, switch house, power house, wastewater treatment plant, coal pile slab, tank farm, salvage and reclamation yard, and drum storage pad. The paint and mechanical yard and haul-away yard are paved areas west of the main plant building. The nearest residences (five homes) are adjacent to the haul-

away yard, just across the property boundary, near the intersection of Edinger and Mexico Roads. The nearest residence is at the end of Mexico Road, approximately 575 yards from the main plant building. The Wentzville airport is west of the facility, across Edinger Road, which runs just outside the western property boundary. BASF Corporation is also across from the property boundary on Edinger Road. The land north of the facility is farmland. Scattered residences are east and south of the facility (Photographs 47, 48, Appendix C). A subdivision is southwest of the facility, along Pitman Avenue, approximately 1000 feet from the property boundary (Photographs 49, 50, Appendix C).

2.3 Ownership History

The owner of this facility is General Motors Corporation, 3044 West Grand Boulevard, Detroit, Michigan. This facility has had no other owner since construction. Construction of the facility began in 1980, and operations began in 1983, with full production being reached in 1984 (Appendix I).

2.4 Nature of Operations

The General Motors Wentzville Assembly Center conducts the assembly of passenger automobiles. The facility operates for two eight-hour shifts each day, and employs approximately 5,000 workers. The general processes which generate waste are auto assembly, general maintenance, body washing, auto painting, wastewater treatment, stormwater management, and power generation. These processes, the wastes generated, and the associated SWMUs are discussed below. Waste disposition and air issues are also described. All wastestreams are summarized in Table 1. Wastestream numbers refer to Missouri Department of Natural Resources (MDNR) registration numbers. EPA waste codes are shown in Table 1. According to facility personnel, wastestreams designated nonhazardous are so designated based on biannual analyses which are conducted for each wastestream generated on site.

Auto Assembly and General Maintenance

Auto body assembly involves the use of spot and fusion welding processes. Final assembly is accomplished using metal fasteners. Various types of refuse are generated during the assembly process. These wastes are managed at satellite accumulation areas which collect hazardous waste and general refuse (Photograph 43, Appendix C). Safety Kleen parts washers are also near some of these satellite accumulation areas. General maintenance practices and other processes throughout the facility generate wastes which are also managed at satellite accumulation areas, general refuse collection areas, and Safety Kleen parts washers (Photograph 1, Appendix C). Up to four drums of waste are collected at one time at each of 18 satellite accumulation areas throughout the facility. Up to one drum of waste is collected at one time at each of 50 to 75 additional satellite Wastes accumulated at these areas include paint-contaminated filters and rags accumulation areas. (wastestreams 008), solvent-contaminated rags (wastestreams 019), black seam sealer wastes (wastestream 014), and "alternate fuel mix" waste liquids and sediments (wastestreams 010 and 011). The "alternate fuel mix" includes waste paint, solvent, windshield washer, oil, glycols, and gasoline. Wastestream 010 is disposed of through Safety Kleen as a secondary fuel supplement for a cement kiln. Wastestreams 008, 014, 019, and 011 are sent to Chemical Waste Management in Sauget, Illinois for incineration. The Safety Kleen Corporation maintains the 32 parts washers throughout the facility. Wastes from these units are part of wastestream 017. Most of these units contain naphtha. General refuse generated at the facility is sent to Area Disposal in Clinton, Illinois. White seam sealer is collected in drums and sent to Peoria Disposal in Peoria, Illinois for landfilling.

Body Washing

The assembled auto bodies are run through a wash process prior to being painted. This process consists of seven steps. The cars first are immersed in a 75,000-gallon body washer dip tank, followed by a rinse, a spray cleaner, and another rinse. They are then sprayed first with phosphate and with chromic acid to pit the metal. The cars then receive a final rinse before they are sent to the ELPO dip tank. Sludges from the body washer dip tank are periodically shoveled out. Phosphate wash waste consists of both a sludge which is collected on

filters (Photograph 5, Appendix C), and a tank bottom residue. In the past, these wastes were handled as hazardous wastestream numbers 012 (body washer sludges) and 009 (phosphate wash sludges). Currently, all of these wastes are collected in roll-off boxes and are disposed of as nonhazardous bulk waste by Area Disposal. There are no chromic acid wastes.

Auto Painting

Following the body washing process, the auto bodies are sent through the 80,000-gallon ELPO dip tank (Photograph 3, Appendix C). In this tank, pre-primer anti-corrosion paint is applied using an electrodisposition plating process. The ELPO pre-primer contains 95% deionized water, along with a pigment containing 1 to 3% lead, and a resin. The waste generated by this process mainly consists of filters. Sludge generation is minimal. Filters (Photograph 2, Appendix C) and sludges are managed as wastestream 005 and are sent to Peoria Disposal in Peoria, Illinois.

Pre-primed auto bodies are painted at the six central paint booths. Paper filters are used in the paint delivery lines to remove solids. These filters are collected at satellite accumulation areas and are disposed of as part of wastestream 008. Paint overspray from these booths is forced into a flow-through water circulation system by a downdraft air current which is maintained in each booth. Water circulated through the six central paint booths flows to one of two 800,000-gallon pits (Photographs 6, 7, Appendix C) at the paint sludge building (Figure 2). The bulk flow through the paint sludge building recirculates through a 40-inch line at 50,000 gallons per minute. Paint sludge solids are floated in the paint sludge building pits and are then directed through a weir which collects 1,000 gallons per minute of sidestream filtration. Floating solids in the sidestream are collected on a conveyor belt and pumped onto a continuously passing disposable filter. The solids are dewatered and the filter is continuously passed into a roll-off box (Photographs 8, 9, Appendix C). These filters and the sludges generated by occasional cleaning of the pits are handled as a nonhazardous bulk waste referred to as "central sludge". This waste is sent to Area Disposal.

Three paint booths are not part of the central paint system. Paint sludges are accumulated in hoppers at these booths and are managed as part of the central sludge bulk wastestream (Photograph 34, Appendix C).

Two components are used to form the clearcoat paint used as a final coat at the paint booths. These components become a solid upon mixing, and form "icicles" where the overspray accumulates. This waste is handled as a nonhazardous solid waste and is sent to Area Disposal.

Waste solvents are generated by the purging of paint spray guns at each of the paint booths. This waste is piped directly to a 20,000-gallon hazardous waste storage tank at the tank farm (Figure 2) (Photograph 21, Appendix C). The waste purged thinner is sent to Michigan Recovery in Detroit, Michigan for distillation and recycling. The generation rate of this waste was approximately 8,000 gallons per month, prior to March 1990. In March 1990, the painting operation began using water-borne paint in place of the previously-used solvent-borne paint for the base and final coats. The main result of this change was that waste purged thinner generation was reduced by one-third to one-half. Waste purged thinner is transported off site for distillation.

Wastewater Treatment

The wastewater treatment plant receives process wastewater from throughout the facility as well as 30,000 to 40,000 gallons per day of blowdown from the paint sludge building. All floor drains from the facility are connected to the wastewater treatment plant. In addition, all wastewater from the central paint sludge process is released to the wastewater treatment plant approximately twice per year when the sludge pits are cleaned. Wastes generated by the wastewater treatment process include grit separator sludge and filter press sludge. Treated water is discharged to the City of Wentzville municipal system. The General Motors facility provides 75% of the wastewater volume handled by the Wentzville publicly-owned treatment works.

Wastewater entering the wastewater treatment plant flows through two grit separator reservoirs (Figure 3). A drag chain at the bottom of each reservoir removes grit separator sludge, which is collected in hoppers and disposed of in roll-off boxes as a nonhazardous waste (Photographs 11, 12, Appendix C). This wastestream is sent to Area Disposal. An oil skimmer also operates at the grit separator reservoirs. Skimmed oily water is collected in a waste oil tank and is generated at a rate of approximately 2,000 gallons per year. The waste oil tank is pumped out periodically to a roll-off box, which is then emptied onto the coal pile. Disposal of waste oil onto the coal is approved by MDNR as a waste recycling process.

Wastewater flowing through the grit separator reservoirs is pumped to holding tanks where it is aerated and pH-adjusted, then is pumped to a flash mix tank and a blend tank where chemicals which promote contaminant removal (coagulants and precipitants) are added. Each batch is jar-tested at this point, and pH is continually monitored. Chemically-treated wastewater gravity-feeds to one of two 365,000-gallon clarifiers (Photograph 15, Appendix C), where settleable solids are removed by a sludge rake. Clarifier effluent is discharged to the sanitary sewer.

Sludge from the clarifiers is pumped to an 18,000-gallon sludge thickener tank (Photograph 16, Appendix C), and from there to a 6,000-gallon sludge conditioner tank. Finally, it is sent through two filter presses (Photograph 17, Appendix C). Filter press sludge is collected in 40-cubic yard roll-off boxes and is disposed of as a nonhazardous waste (Photographs 18, 19, Appendix C). This wastestream is sent to West County Disposal in St. Louis for landfilling.

Stormwater Management

Stormwater runoff from the plant property drains to the retention pond inlet control structure which directs the flow into the stormwater retention ponds (Figure 2). Flows up to 150 cfs are directed to either the north pond or the south pond and flows exceeding 150 cfs are directed to both ponds. The retention volume of the north pond is 1.44 million gallons and that of the south pond is 0.94 million gallons. The total retention volume is equal to the runoff from 0.36 inches of rainfall. An NPDES-regulated outfall from each pond discharges to an unnamed creek which flows to Lake St. Louis (Photographs 24 through 29, Appendix C). When one pond is full, the inlet control structure will automatically direct the flow to the other pond. When both ponds become full (in the event of a heavy storm), the second pond will overflow through the effluent structure and discharge through a metering gate. Following a storm, or when the retention ponds become full, the waste treatment plant operator inspects and/or samples the water before opening the discharge gate.

The stormwater retention ponds are unlined (Photographs 22, 23, Appendix C). A cement weir at each outfall keeps the siltation in the outflow within NPDES limits. In the summer, algal growth in the retention ponds becomes a problem and must be controlled to keep the total suspended solids in the outflow within the regulated limits. Copper sulfate is dispersed from a rowboat to control the algae. Vegetation in the vicinity of the outflow did not appear to be stressed at the time of the VSI.

A 2,000-gallon underground storage tank is buried in the earthen berm between the stormwater retention ponds (Figure 2). This tank was originally intended to collect oil skimmed from the surface of the ponds by a skimmer. According to facility personnel, this skimmer never worked and no oil was ever collected in the tank. The tank was assumed to be empty and was filled with sand in 1985, before current UST rules became effective. The skimmer system was disabled and was replaced by floating baffles with oil-absorbant booms. These are currently used and are collected in roll-off boxes and sent to Area Disposal.

Stormwater runoff is also collected at an unlined collection pond at one end of the coal storage pad (Figure 2). The coal storage pad is concrete and is constructed with a slight inclination in order to direct runoff to the pond (Photographs 13, 14, Appendix C). This pond receives surface drainage only, which collects in the pond and is piped to the wastewater treatment plant. Runoff from a gravel storage area also collects in this pond. Vegetation surrounding the pond and between the pond and the coal pile did not exhibit signs of stress at the time of the VSI.

Power Generation

The coal stored at the coal pile is burned at the powerhouse to heat the boiler. The fly ash waste which is generated is managed at the fly ash silo (Figure 2), and is sent to West County Disposal for landfilling.

Air Handling

The facility air handling system includes a fan farm and stack (Photograph 10, Appendix C) and holds air permits for power plant and paint booth operations. Two dual paint booths were constructed in 1990 to replace the main color paint booth. This change was implemented as part of the changeover to water-borne base and final paint and was incorporated into the air permit. Air intake filters at all paint booths are changed as needed and disposed of as general refuse.

Waste Disposition

All drummed wastes generated at the facility are sent to and managed at the drum storage pad prior to shipment to an off site disposal facility using a RCRA permitted transporter (Photographs 35 through 38, Appendix C). Approximately 2400 drums per year are managed at the drum storage pad. Drums containing wastestream 010 are emptied into tanker trucks for shipment off site by Safety Kleen Corporation. This waste is sent to a cement kiln for incineration as an alternate fuel source. A 10,000-gallon carbon steel aboveground waste storage tank at the drum storage pad is intended for management of wastestream 010, which would be collected in the tank prior to transfer to a tanker truck for off site disposal (Photograph 39, Appendix C). This tank has an inner coating of polyamide-epoxy paint. The tank has not been used and will not be put into service until MDNR approves the closure plan, according to facility personnel.

General refuse generated at the facility, with the exception of metals, cardboard, and office paper, is sent to the trash dock (Figure 2). General refuse is compacted into 75-cubic yard loads, which are sent to Laidlaw Environmental Services in St. Louis (Photograph 45, Appendix C). These bales are generated at a rate of 100 per month. Cardboard and office paper are currently recycled (Photograph 44, Appendix C). Waste metal is sent to the salvage and reclamation yard (Figure 2, Photograph 42, Appendix C) and is ultimately returned to the GM foundries.

2.5 Permit and Regulatory History

Operations at the General Motors Wentzville Assembly Center began in 1983. The facility is a registered hazardous waste generator (EPA I.D. MOT300010261, MDNR I.D. 03313) and resource recovery facility (MDNR Certification RR0139). The facility first submitted a RCRA Part A Application in June 1980. The most recent revision to this application was filed in December 1986 (Appendix H). Wastes generated and handled, and associated SWMUs have not changed since submission of this revision. A RCRA Part B permit application has not been filed. Although the facility holds interim status as a treatment, storage, and disposal (TSD) facility due to the fact that wastes are stored at the Drum Storage Pad for longer than 90 days, the facility has submitted an interim closure plan (Appendix F) to terminate its interim status such that it will hold generator status only. The closure plan was originally submitted to MDNR in March 1984, and was most recently revised in August 1988. This plan calls for changes to the drum storage pad to facilitate storage for less than 90 days only. MDNR approval for this plan has not been received and the plan has not been implemented. The closure plan is currently being revised to include closure information for the waste purged thinner tank in addition to the drum storage pad.

The resource recovery operation consists of an oil recycling process. Although the facility has always used this process, it was not approved by MDNR until 1991. The certification for this process is included as Appendix K. An oil skimmer associated with the grit separator reservoirs at the wastewater treatment plant collects waste oil mixed with water in a 500-gallon waste oil tank. This waste is periodically emptied onto the coal pile. Approximately 2,000 gallons per year of waste oil-water mix are recycled in this manner.

RCRA Compliance Evaluation Inspections (CEIs) have been performed by MDNR in October 1984, October 1986, January 1989, January 1990, September 1990, and July 1991 (Reference 1). Unsatisfactory features noted in inspection reports have included manifest errors, open containers, inadequate aisle space, labelling problems, and necessary revisions to the waste analysis plan, the training plan, the contingency plan, the closure plan, the inspection logs, and the wastestream registration. No releases or potential releases of hazardous or solid wastes have been noted during the CEIs.

The facility holds MDNR air permits for power plant and paint booth operations (permit numbers 0580-003 and 0580-004), two dual paint booths (permit number 1089-003), and the gasoline cleanup venting operation (permit number 0387-007A). Air pollution inspections have been conducted by the MDNR in October 1985, March 1989, and August 1991 (Reference 2). Excessive carbon monoxide emissions from the power plant were noted and rectified in 1984 (Reference 3). Excessive VOC emissions from the top coat operation were noted in January 1990. Modification of the paint operation in March 1990 rectified this problem (Reference 4). No other emissions violations have been noted.

The facility holds NPDES permit number MO-0100153 for discharge of stormwater runoff from two stormwater retention ponds into an unnamed tributary to Lake St. Louis. This permit became effective November 27, 1981 and was most recently renewed in 1988 (Appendix G). Effluent limitations include, on a daily maximum/monthly average basis, respectively, total suspended solids: 80/60, and oil and grease: 20/15. Monitoring requirements include daily monitoring of flow, and monthly monitoring of pH, chemical oxygen demand, total organic carbon, and sulfates. Oil and grease values exceeded effluent limitations in the second and third quarters of 1986 (Reference 5). These values were determined to be high as a result of sampling error. Total suspended solids exceeded effluent limitations by 85 to 900% between January 1983 and February 1984 (Reference 5). A cement weir was constructed at each outfall following these violations, to limit siltation. No other violations are noted.

No regulatory enforcement actions for this facility have been filed. No closure actions are underway or are planned.

3.0 ENVIRONMENTAL SETTING

The purpose of this section is to provide information necessary to evaluate the potential for an environmental release to area groundwater and surface water resources. This information will also provide information regarding potential receptors.

3.1 Area Water Supply

The population within one-quarter mile of the site is 70, and the population between one-quarter and one-half mile from the site is 51. A population of 191 lives between one-half and one mile from the site. In the one to two, two to three, and three to four mile radii, respectively, the populations are 415, 1617, and 4897 (Reference 6).

Public drinking water for the City of Wentzville has been provided by a facility in Weldon Spring, Missouri since July 1986 (Reference 7). This facility is not within the target distance limit of the site. Two local public water supply drinking water wells are maintained on a standby basis. One of these wells is located approximately one-eighth mile south of the site and is approximately 1,500 feet deep. The second well is located approximately one and one-half miles west of the site and is approximately 500 feet deep. Private domestic wells serve some of the homes outside of the city. In the immediate vicinity of the site, approximately 50% of residents are supplied by private domestic wells, and 50% are served by city water (Reference 7). Appendix J contains a listing of all wells within a four-mile radius of the site (Figure 4). Most of these are domestic-use wells. Six wells are within one-quarter mile of the site boundary, six wells are between one-half mile of the site boundary, and 16 wells are between one-half and one mile of the site boundary. In the one to two, two to three, and three to four-mile radii, respectively, there are 33, 46, and 74 wells. The nearest well is at the southwest corner of the

site property. This private well is approximately 500 feet from the site boundary. The legal location of this well is Southwest ¼, Southwest ¼, Section 21, Township 47 North, Range 2 East.

3.2 Potential Surface Water Receptors

Facility storm sewers direct runoff to the stormwater retention ponds, which discharge to the unnamed creek which flows along the east perimeter of the facility property. Surface water migration also enters this creek. The unnamed creek flows south and enters Lake St. Louis. The 15-mile surface water migration pathway includes both of these bodies of water, as well as several stream miles of Peruque Creek, which flows northeast from Lake St. Louis. Surface water migration from the site is depicted on Figures 1, 4, and 5.

Lake St. Louis is used by area residents for recreational purposes such as swimming, fishing, and boating. Peruque Creek is used for recreational fishing. Fishing is not known or expected to occur along the unnamed creek which flows into Lake St. Louis (Reference 8).

Potential ecological receptors include a variety of fish, amphibians, and invertebrates which inhabit these bodies of water, as well as other species which may feed from them (Reference 8).

3.3 Area Geology and Hydrogeology

The site and the surrounding area lies within the dissected till plains physiographic province (Reference 9). The ground surface in the area is gently undulating with local altitudes ranging from 580 ft to 650 ft MSL.

Soils in the vicinity of the site are part of the Armster-Mexico-Hatton association (Reference 10). This association consists of a partly loess-covered glacial till plain which occupies most of the higher areas of the county and the narrow ridges and side slopes supporting them.

Mexico soils are gently sloping and somewhat poorly drained. They are on the crests of upland divides and on long side slopes. The Hatton soils are moderately sloping and are on rounded ridge crests and are moderately well drained. The Armster soils are moderately sloping and moderately well drained, and are found on side slopes below the Mexico and Hatton soils.

The Sensabaugh silt loam is also found as a minor occurrence in the vicinity of the site. The Sensabaugh is nearly level, well drained soil and is found in flood plains along creek and stream branches. These soils are subject to occasional flooding of brief duration (Reference 10).

Overburden material in the vicinity of the site is composed of clay which ranges in thickness from 20 ft to 40 ft (Reference 11) and overlies a carbonate bedrock surface.

Site Geology

In general, the shallow geologic sequence in the area consists of weathered glacial till (overburden clay) overlying the Burlington-Keokuk limestone bedrock. A thin residual soil and weathered rock zone are present on top of competent limestone.

The overburden clay unit (glacial till) consists primarily of gray to brown clay to sand clay with varying amounts of silt, gravel, chert and rock fragments. Limestone rock fragments are present in the clay near the top of bedrock. In the western portion of the plant property, the thickness of the overburden clay unit ranges from 14 to 40 feet. In general, the clay unit thickness to the south and west. Data indicate that the thickness of the clay unit may increase near the northern property boundary which borders State Route A (Reference 17).

Limestone of the Burlington-Keokuk Formation appears to form the bedrock at the plant property. The unit is approximately 200 feet thick. Basal units of the Warsaw Formation were not identified, but, since the contract

between the two units is gradational, the presence of Warsaw units cannot be excluded. Competent limestone is overlain by a residual clay-weathered limestone zone that is no more than five feet thick (Reference 16).

The Warsaw Formation is present in many Mississippian outcrop regions of Missouri and has been identified throughout most of the subsurface of northern and western Missouri. The Warsaw Formation does not possess lithologic features diagnostic of the formation. It varies lithologically from eastern to western Missouri. In western and southwestern Missouri the Warsaw Formation is a Mississippian carbonate which is lithologically similar to the underlying Burlington-Keokuk Limestone. In this area, the Short Creek Oolite Member of the Keokuk is used to identify the formational boundary. In eastern Missouri the Warsaw Formation becomes more argillaceous (clayey) and is predominantly composed of shale with interbedding of thin-bedded limestone. Toward its base, the Warsaw Formation becomes more calcareous with interbedded limestone becoming thicker and more predominant (Reference 12). Opinions also differ as to the presence or absence of this Oolite member in eastern Missouri.

The Burlington-Keokuk is a gray, fossiliferous, coarse-grained limestone that contains abundant chert lenses and nodules in the upper section. In the lower portion of the formation, the unit becomes interbedded with chert layers which can be one foot thick, bedding in the Burlington-Keokuk thickens downward from thin-bedded to massive. In general, the limestone is moderately to slightly weathered in the upper 15 feet and contains some shaley seams and zones. Outcrops in the area indicate that the formation strikes North 43° West and dips to the northeast at approximately 4°. This correlates with regional trends.

The limestone bedrock is slightly fractured at the Wentzville Assembly Plant. Two primary joint set trends have been identified in the outcrop. The major trends are North 30° to 45° West and North 45° to 60° East. Secondary joint sets appear to trend approximately east-west.

Solution activity in the limestone bedrock appears somewhat minimal and occurs along fractures and bedding planes. During test drilling operations at the site, primary solution activity zones, as evidenced by occurrences of partial or complete drilling fluid loss, were restricted to within ten feet of the borehole static water level; most circulation losses occurred within five feet of the water level.

Site Groundwater Hydrology

The shallow aquifer system is composed of basically two components at the Wentzville Assembly Plant facility. The overburden clay unit (glacial till) is a leaky confining bed or aquitard. The underlying limestone appears to be under water table conditions when the base of the clay unit is above the saturated zone, and under semi-artesian conditions when there is no unsaturated zone present between the two units (Reference 18).

Overall, there is a downward vertical flow gradient present in the unit. Monitoring wells or piezometers open to deeper bedrock limestone intervals maintain correspondingly lower water levels. All other monitoring wells and piezometers completed in the upper 15 to 20 feet of the saturated portion of the aquifer maintain water level elevations in the range of 593 to 599 (Reference 18).

Groundwater surface data indicates that an east-west trending groundwater divide is present in the northern portion of the site. North of the divide, the general direction of groundwater flow is towards the northeast. South of the divide, the general flow direction is southeast. Groundwater gradients south of the divide are approximately 17.5 to 18.0 ft/mile. North of the divide, the groundwater gradient is in the range of 9.5 to 11.5 ft/mile (Reference 18).

Estimated bedrock permeability (hydraulic conductivity) ranges from 6.0×10^{-9} cm/sec $(1.3 \times 10^{-4} \text{ gpd/ft}^2)$ to 6.8×10^{-3} cm/sec $(1.4 \text{ to } 10^2 \text{ gpd/ft}^2)$. Previous work indicates that the average estimated permeability of the bedrock is 4.8×10^{-4} cm/sec $(1.0 \times 10^1 \text{ gpd/ft}^2)$. The estimated permeability for the overburden clay is 6.0×10^{-5} cm/sec $(1.3 \times 10^{-2} \text{ gpd/ft}^2)$. The groundwater flow rate in the bedrock limestone aquifer is estimated to be in the order of 4×10^{-5} cm/sec (approximately 0.1 foot/day) utilizing an assumed porosity value of 0.03 (Reference 18).

3.4 Area Climatology and Meteorology

Climatological data is based on usable annual data collected over the last 20 years at the Weldon Spring Wildlife Area, Missouri (Reference 13). The Weldon Spring Wildlife Area is approximately 10 miles southwest of the General Motors facility. Based on this information, temperatures in the area exceed 90° F on an average of approximately 35 days per year and remain below 32° F on an average of approximately 24 days per year. Average annual precipitation in the area is approximately 38 inches.

Prevailing winds, as reported by the Wentzville municipal airport (immediately west of the facility) are primarily from the east-southeast in the spring, from the south-southwest in the summer, from the north-northwest in the winter, and from the west-southwest in the fall (Reference 14).

3.5 Critical Habitats and Endangered Species

Information regarding critical habitats and endangered species within the study area was obtained from the Missouri Department of Conservation (MDOC). The MDOC reports four endangered species as occurring in St. Charles County: the pallid sturgeon, bald eagle, peregrine falcon, and least term. In addition, several species which are candidates for federal listing as threatened or endangered occur in St. Charles County. These include the starwort, sturgeon chub, sicklefin chub, eastern massauga rattlesnake, alligator snapping turtle, and snowy egret (Reference 15). None of these species are known to occur within one-half mile of the facility or within a 15-mile downstream distance of the facility (Figure 14).

No critical habitats or sensitive environments are on or within one-half mile of the facility (Figure 4). No aquatic critical habitats or sensitive environments are within a 15-mile downstream distance (Figure 14).

4.0 VISUAL SITE INSPECTION

The VSI for the General Motors Wentzville Assembly Center was conducted on December 11, 1991. The VSI focused on the past and present wastestreams at the facility in order to identify all SWMUs and AOCs and to collect information beneficial in assessing their potential to release hazardous waste and/or hazardous constituents to the environment.

During the visual site inspection, three representatives of the facility accompanied the Jacobs investigation team members, as described in Section 4.1 below.

The weather conditions at the facility during the VSI were overcast and cool, with temperatures in the 50's.

4.1 Visual Site Inspection Participants

The following personnel were present during the VSI (Appendix A):

Ms. Debra Cooper Environmental Scientist Jacobs Engineering Group Inc.

Ms. Stephanie Doolan Chemist Jacobs Engineering Group Inc. Ms. Melissa Jones Environmental Engineer General Motors Corporation

Mr. Bill Hayes Technical Engineer General Motors Corporation

Mr. Tim Bruce General Motors Corporation

4.2 Solid Waste Management Units (SWMUs) and Other Areas of Concern (AOCs)

The SWMUs and AOCs are listed in Tables 1 and 2. Wastestream numbers given in the text and table refer to MDNR wastestream registration numbers. Wastestreams designated nonhazardous are so designated based on biannual analyses which are conducted for each wastestream generated on site, according to facility personnel. Photographs of the SWMUs and AOCs, as indicated by photograph number, are included in Appendix C. SWMU and AOC locations are shown on Figure 2. Some SWMU locations are described in the text according to column numbers. These numbers are painted on upright columns in the plant, and are readily visible. Column numbers given represent the columns which are adjacent to the SWMU.

SWMU NAME: Safety Kleen units

SWMU DESCRIPTION: Thirty-two Safety Kleen parts washers are throughout the facility. The parts washers are metal cabinets covered by a hinged metal lid. An electric pump pumps the cleaner fluid from a reservoir through a metal hose which is used to clean parts in the unit. The fluid drains back into the reservoir and is recirculated. These units are tracked on a computer log maintained by facility personnel (Appendix D). Most of these units contain naphtha. The volumes of these units range from five to sixty gallons. All Safety Kleen units are maintained by Safety Kleen two to three times per month. Units observed appeared to be in good working conditions at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Most units contain naphtha; some contain lacquer thinner or cleaning liquid compound. Wastes from these units comprise hazardous wastestream 017, EPA waste codes D007, D018, D001. Approximately 60 gallons of waste per month are generated and are removed from the units, transported off-site, and disposed of by Safety Kleen, St. Charles, Missouri.

RELEASE CONTROLS: These units are kept closed, and are used indoors on concrete flooring.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: In the event of a spill, liquid naphtha could potentially be adsorbed to concrete facility flooring, and fumes could be released to air.

SWMU NAME: Body Washer Dip Tank

SWMU DESCRIPTION: The assembled cars go through a wash process before they are painted. The entire process consists of seven steps, the first of which is immersion in a 75,000-galion body washer dip tank. The body washer dip tank is an approximately 90-foot by 20-foot steel structure with aluminized walls, manufactured by Binks. The body washer dip tank is in the main plant building at columns 35DD-35EE (Figure 2). This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Sludges from the body washer dip tank are periodically shoveled out and are handled as nonhazardous. Approximately 110 gallons per year of waste sludges are generated. Until 1985, this sludge was handled as hazardous wastestream number 012. In 1985, analyses showed that this waste was no longer hazardous. The composition of the waste is not known to have changed, according to facility personnel. The sludge is and has historically been collected in roll-off boxes which are managed at the roll-off box accumulation area. The sludge was sent to Peoria Disposal until 1988, and has been sent to Area Disposal since then.

RELEASE CONTROLS: This area is contained by a concrete berm approximately 12 inches high.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Although minor releases would be contained within the bermed area, a large release from this unit might exceed the capacity of the bermed area and cause migration of washwater and sludges to the facility floor surrounding the tank.

SWMU NAME: Phosphate Wash

SWMU DESCRIPTION: Prior to painting, all auto bodies are sprayed with a phosphate wash. The phosphate wash is an approximately 20-foot by 850-foot steel structure with aluminized walls, manufactured by Alpha-Debon. The phosphate wash is in the main plant building at columns KK43-KK60 (Figure 2). This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Phosphate wash waste consists of both a sludge which is collected on filters, and a yellow residue which was observed in a bermed area below the wash area. The phosphate wash filters are automatically discharged to a roll-off box. The residue in the bermed area is periodically shoveled into roll-off boxes. Nonhazardous sludge and residue are generated at the rate of 20 to 40 cubic yards per month. Until 1986, this waste was handled as hazardous wastestream number 009, EPA water code F006. In 1986, under regulatory changes in the classification of wastewater treatment sludges from electroplating processes, this waste was no longer considered to be an F006 waste. Currently, it is collected in roll-off boxes which are managed at the roll-off box accumulation area. The waste was sent to Peoria Disposal until 1988, and has been sent to Area Disposal as a nonhazardous wastestream since then.

RELEASE CONTROLS: The area where the residue collects is bermed.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: In the event of a release from the phosphate wash, residues and sludges could be released to the concrete facility floor.

SWMU NAME: ELPO Dip Tank

SWMU DESCRIPTION: Following the body washing process, the auto bodies are sent through the 80,000-gallon ELPO dip tank. The ELPO dip tank is an approximately 900-foot by 20-foot steel structure with aluminized walls, manufactured by Gallagher-Kaiser. The ELPO dip tank is in the main plant building at columns HH42-HH60 (Figure 2). In this tank pre-primer anti-corrosion paint is applied using an electrodisposition plating process. The ELPO pre-primer contains 95% deionized water, along with a pigment containing 1 to 3% lead, and a resin. This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: The waste generated by this process mainly consists of filters, which are removed for disposal. Sludge generation is minimal. Sludges are occasionally shoveled out. Sludges and filters are generated at the rate of 100 to 200 gallons per month and comprise hazardous wastestream number 005, EPA waste code D008. These wastes are collected in drums and are stored at the drum storage area prior to being sent to Peoria Disposal for landfilling.

RELEASE CONTROLS: The ELPO Dip Tank is surrounded by a three-foot concrete berm.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: In the event of a spill, contaminants could potentially adsorb to the concrete facility flooring.

SWMU NAME: Waste Purged Thinner Tank, Temporary Waste Purged Thinner Tank

SWMU DESCRIPTION: Waste purged thinner generated by purging of paint spray guns at the paint booths is piped through above ground piping to a 20,000-gallon aboveground tank located at the tank farm (Figure 2). This tank is a carbon steel, horizontal tank, 10.5 feet in diameter and 31 feet in length. It was constructed in 1982. The tank is the second tank east of the southwest corner of the tank farm. Waste purged thinner was temporarily stored in an adjacent tank in 1988 during inspection of the regular tank. Tank assessment and certification were performed at this time. No evidence of external or internal corrosion were noted. This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: The generation rate of this waste was approximately 8,000 gallons per month prior to March 1990. In March 1990, the painting operation began using water-borne paint in place of the previously-used solvent-borne paint for the base and final coats. The main result of this change was that was purged thinner generation was reduced by one-third to one-half. Waste purged thinner comprises wastestream 001, EPA waste codes D001, F003, F005, and is pumped into tanker trucks which are sent to Michigan Recovery for distillation and recycling.

RELEASE CONTROLS: All tanks at the tank farm are visually inspected by GM on a daily basis and tank level readings are taken. Secondary containment at the tank farm consists of an epoxy-coated cement berm which will hold 1.5 times the capacity of the largest tank. This containment area is connected by drains to the wastewater treatment plant. These drains are normally closed.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: In the event of a spill, contaminants would not be expected to migrate beyond the secondary containment. Fumes would be released to the air.

SWMU NAME: Paint Sludge Pits

SWMU DESCRIPTION: Water circulated through the six central paint booths collects overspray from these booths and flows to one of two 800,000-gallon pits which are underground between and the paint sludge building and the fan farm (Figure 2). Catwalks over these pits are accessible from the paint sludge building. The bulk flow through the paint sludge building recirculates through a 40-inch line at 50,000 gallons per minute. Paint sludge solids are floated in the paint sludge building pits and flow through a weir which collects 1,000-gallons per minute of sidestream filtration. Floating solids in the sidestream are collected on a conveyor belt and pumped onto a continuously passing disposable filter (SWMU Number 7). This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: The sludges generated by occasional cleaning of the pits are handled as part of the nonhazardous bulk waste referred to as "central sludge". The total central sludge waste stream volume is approximately 100 cubic yards per month. This waste is periodically shoveled into roll-off boxes which are sent directly to Area Disposal.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Potential migration of wastes to underlying soils and groundwater could occur in the event of a release from these pits.

SWMU NAME: Paint Sludge Filter

SWMU DESCRIPTION: The Paint Sludge Filter occupies the Paint Sludge Building (Figure 2). The paint sludge filter is an approximately 10-foot by 60-foot structure, manufactured by Hoffman. Paint sludge solids are floated in the paint sludge building pits and flow through a weir which collects 1,000 gallons per minute of sidestream filtration. Floating solids in the sidestream are collected on a conveyor belt and pumped onto a continuously passing disposable filter. A six-inch concrete curb surrounds the concrete slab on which the filter sits. This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: The paint sludge solids are dewatered and the filter and sludges are continuously passed into a 20-cubic yard roll-off box. This filter, together with the sludges generated by occasional cleaning of the pits comprise the nonhazardous bulk wastestream referred to as "central sludge". This waste is collected in roll-off boxes, and is sent directly to Area Disposal. The total central sludge wastestream volume is approximately 100 cubic yards per month.

RELEASE CONTROLS: The sludge conveyer belt sits on concrete in a curbed area. The roll-off box which receives the filter sits on concrete flooring.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Releases of sludges not contained in the bermed area would migrate to the concrete facility flooring.

SWMU NAME: Clearcoat Operation at Paint Booths

SWMU DESCRIPTION: The six paint booths are approximately 30-foot by 275-foot steel structures with aluminized walls, manufactured by Binks. The paint booths are in the main plant building near columns AA47, X47, and F67 (Figure 2). Two components are used to form the clearcoat paint applied as a final coat in the six paint booths. These components become a solid upon mixing, and form "icicles" where the overspray accumulates. This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: The grates on which the "icicles" form are sent off site to Industrial Services of the Midwest, Inc. for water-blasting. The wastes are returned to the facility in hoppers and are handled and disposed of as nonhazardous waste. Approximately 18 drums per year of this waste are generated. The waste solids are emptied into roll-off boxes at the roll-off box accumulation area and are sent to Area Disposal.

RELEASE CONTROLS: Paint booths are above a re-circulating water system. Clearcoat solids not handled as part of this wastestream would become part of the central sludge wastestream.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Releases of these solids would not result in migration, as they are a stable, nonhazardous material.

SWMU NAME: Satellite Paint Booths

SWMU DESCRIPTION: Three paint booths are not part of the central paint system. The satellite paint booths are in the main plant building at columns J63-J65 (Figure 2). The paint booths are in areas with concrete flooring and drains connected to the wastewater treatment plant. Paint sludges are accumulated in roll-off boxes at these booths and are managed as part of the nonhazardous central sludge bulk wastestream. Units appeared to be in good working condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: The sludges generated at the three satellite paint booths are collected in roll-off boxes at each booth, which are managed at the roll-off box accumulation area and sent to Area Disposal. The satellite paint booths generate approximately 20 cubic yards of sludge per month.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Released sludges from these units would migrate to the concrete facility flooring.

SWMU NAME: Grit Separator

SWMU DESCRIPTION: Wastewater entering the wastewater treatment plant flows through two grit separator reservoirs and is then pumped into the holding and treatment tanks. A drag chain at the bottom of each reservoir removes grit separator sludge. These units appeared to be in good operational condition at the time of the VSI. The volume of these reservoirs is not available.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Grit separator sludge is deposited in 20-cubic yard roll-off boxes by the drag chain and is disposed of as a nonhazardous waste. Approximately nine roll-off boxes of waste per year are generated. The roll-off boxes are sent directly to Area Disposal.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Released wastewater from the reservoirs or the roll-off boxes would migrate to the concrete facility flooring.

PHOTOGRAPH NO.: 11, 12

SWMU NAME: Waste Oil Tank

SWMU DESCRIPTION: An oil skimmer operates at the grit separator reservoirs. Skimmed oily water is collected in a 500-gallon waste oil tank at the end of the grit separator reservoirs. This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: The oil-water mix is generated at a rate of approximately 2,000 gailons per year. The waste oil tank is pumped out periodically to a roll-off box, which is then emptied onto the coal pile. This is a recycling operation.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Spilled oil could potentially adsorb to concrete facility flooring.

SWMU NAME: Filter Presses

SWMU DESCRIPTION: Sludge from the wastewater treatment plant clarifiers is pumped to an 18,000-gallon sludge thickener tank, and from there to a 6,000-gallon sludge conditioner tank. Finally, it is sent through two 8-foot by 15-foot filter presses. The filter presses are on the first floor of the power house at columns D9-D10 (Figure 2). These units appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Filter press sludge is automatically disposed into 40-cubic yard roll-off boxes and is disposed of as a nonhazardous waste. Approximately 150 cubic yards per month of filter press sludge are generated. The roll-off boxes are sent directly to West County Disposal for landfilling. Until 1986, this waste was managed as hazardous wastestream 006, EPA waste code F006. In 1988 under regulatory changes in the classification of wastewater treatment sludges from electroplating processes, this waste was no longer considered to be an F006 waste.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Solids from the filter presses, if released, would be contained by the concrete facility flooring.

PHOTOGRAPH NO.: 16, 17, 18, 19

SWMU NAME: Stormwater Retention Ponds

SWMU DESCRIPTION: Stormwater runoff from the plant property drains to the retention pond inlet control structure which directs the flow into the stormwater retention ponds. The ponds are 1500 feet east of the main plant building (Figure 2). Flows up to 150 cfs are directed to either the north pond or the south pond and flows exceeding 150 cfs are directed to both ponds. The retention volume of the north pond is 1.44 million gallons and that of the south pond is 0.94 million gallons. The total retention volume is equal to the runoff from 0.36 inches of rainfall. An NPDES-regulated outfall from each pond discharges to an unnamed tributary of Peruque-Dardenne Creek which flows to Lake St. Louis. When one pond is full, the inlet control structure will automatically direct the flow to the other pond. When both ponds become full (in the event of a heavy storm), the second pond will overflow through the effluent structure and discharge through a metering gate. Following a storm, or when the retention ponds become full, the waste treatment plant operator inspects and/or samples the water before opening the discharge gate.

The stormwater retention ponds are unlined. A cement weir at each outfall keeps the siltation in the outflow within NPDES limits. In the summer, algal growth in the retention ponds becomes a problem and must be controlled to keep the total suspended solids in the outflow within the regulated limits. Copper sulfate is dispersed from a rowboat to control the algae. Vegetation in the vicinity of the outflow did not appear to be stressed at the time of the VSI. Floating baffles with oil-absorbant booms collect floating oil from the surface of these ponds. These units appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Runoff from roofs, paved areas, and grassy areas. Oil-absorbant booms are changed one to two times per year and are sent to Area Disposal in roll-off boxes.

RELEASE CONTROLS: An inlet control structure and a discharge metering gate are in place to regulate the flow through these ponds. The ponds are unlined.

RELEASE HISTORY: Permitted releases from the NPDES-regulated outfall occur as necessary.

MIGRATION PATHWAYS: Contaminants in stormwater runoff could migrate from the unlined ponds to soil and groundwater. Contaminants released through the outfall would migrate to surface water via the surface water migration pathway.

PHOTOGRAPH NO.: 22, 23, 24, 25, 26, 27, 28, 29

SWMU NAME: Coal Pile Runoff Pond

SWMU DESCRIPTION: The coal storage pad is concrete and is constructed with a slight inclination such that runoff is collected at an unlined collection pond at the east end of the pad (Figure 2). Vegetation surrounding the pond and between the pond and the coal pile did not exhibit signs of stress at the time of the VSI. This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: This pond receives surface drainage only, which is piped from the pond to the wastewater treatment plant. Runoff from a gravel storage area also collects in this pond.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: All outflow from the pond flows through piping to the wastewater treatment plant.

MIGRATION PATHWAYS: Wastewater is released to an unnamed creek which flows to Lake St. Louis.

PHOTOGRAPH NO.: 13,14

SWMU NAME: Fly Ash Silo

SWMU DESCRIPTION: The fly ash waste which is generated by coal-burning industrial boilers at the powerhouse is managed at the fly ash silo, 200 feet southwest of the power house, (Figure 2). The fly ash silo is a cylindrical building, 26 feet in diameter and 27 feet tall, constructed of steel with a concrete floor. Drains are connected to the wastewater treatment plant.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Fly ash waste managed at the fly ash silo is dumped into roll-off boxes which are collected by West County Disposal for landfilling off site. In one instance in 1990 fly ash waste was sold to the city of Wentzville. Approximately 40 cubic yards of fly ash are generated per month. This unit appeared to be in good operational condition at the time of the VSI.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Released fly ash could migrate to soil and air.

SWMU NAME: Drum Storage Pad

SWMU DESCRIPTION: All drummed wastes generated at the facility are sent to and managed at the drum storage pad prior to shipment to an off site disposal facility using a RCRA-permitted transporter. The pad is a 90-by 135-foot concrete pad with a canopy cover 150 feet north of the main plant building between the building and the wastewater treatment plant. A 10,000-gallon carbon steel aboveground waste storage tank located at the drum storage pad is intended for management of wastestream 010, which would be collected in the tank prior to transfer to a tanker truck for off site disposal. This tank has an inner coating of polyamide-epoxy paint. The tank has not been used and will not be put into service until MDNR approves the closure plan, according to facility personnel. Roll-off boxes of waste are stored adjacent to the drum storage pad prior to shipment off-site (see SWMU Number 19). This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Approximately 2400 drums per year from wastestreams 008, 010, 011, 014, 019, 005 (EPA waste codes D001, D008, F001, F003, F005) are managed at the drum storage pad. Drums containing wastestream 010 are emptied into tanker trucks for shipment off site by Safely Kleen Corporation. This waste is sent to a cement kiln for incineration as an alternate fuel source.

RELEASE CONTROLS: The drum storage pad is coated with a water sealant. The pad is surrounded by a berm outside a moat which drains into a sump through an under-over weir. This sump drains to the wastewater treatment plant and is cleaned out as necessary. Oil wastes would be collected by the under-over weir. This weir and the sump have received negligible discharge, according to facility personnel. The berm surrounding the drum storage pad is discontinuous at two driveways and at the loading dock. A drain at the end of the driveway for the drum storage pad loading dock drains to the wastewater treatment plant, according to facility personnel. This drain is labelled "Storm". The inactive hazardous waste storage tank at the drum storage pad sits in a concrete diked area.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Released wastes would be expected to drain to the sump and would be contained therein. Some migration to air might occur.

PHOTOGRAPH NO.: 35, 36, 37, 38, 39, 40

SWMU NAME: Salvage and Reclamation Yard

SWMU DESCRIPTION: Waste metal is sent to the salvage and reclamation yard (Figure 2) prior to shipment back to the GM foundries for recycling. The salvage and reclamation yard is an uncovered asphalt pad, 100 feet by 100 feet.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Waste metal is accumulated in dumpsters. The amount of waste metal generated is highly variable.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Waste metals, being solid and stable, are not expected to migrate to any environmental media.

SWMU NAME: Trash Dock

SWMU DESCRIPTION: General refuse generated at the facility, with the exception of metals, cardboard, and office paper, is sent to the trash dock, 300 feet south of the northeast corner of the main plant building (Figure 2). The trash dock is in a steel industrial building with concrete flooring and drains connected to the wastewater treatment plant. General refuse is compacted into 75-cubic yard loads, which are stored at the trash dock until they are sent to Laidlaw Environmental Services. These loads are generated at a rate of 100 per month. Cardboard and office paper are currently recycled. This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: General refuse with the exception of metals, cardboard, and office paper.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Releases of general refuse would be contained on the concrete flooring of the trash dock.

SWMU NAME: Roll-off Box Accumulation Area

SWMU DESCRIPTION: Roll-off boxes of waste, including phosphate wash sludges, body washer sludges, ELPO dip tank sludges, and satellite paint booth sludges, are stored adjacent to the drum storage pad to the west and north, on a concrete driveway (Figure 2), prior to shipment off site to Area Disposal and Peoria Disposal. Up to three roll-off boxes of waste are accumulated at once. This unit appeared to be in good operational condition at the time of the VSI.

DATES OF OPERATION: 1983 to present.

WASTES MANAGED: Roll-off boxes containing wastestream 005 (ELPO wastes) and nonhazardous wastes are stored in this area.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: Materials released from the roll-off boxes could potentially adsorb to concrete in this area. Where cracks in concrete exist, migration to soils may occur.

SWMU NAME: Underground Storage Tank at Stormwater Retention Ponds

SWMU DESCRIPTION: A 2,000-gallon underground storage tank is buried in the earthen berm between the stormwater retention ponds (Figure 2). This tank was originally intended to collect oil skimmed from the surface of the ponds by a skimmer. According to facility personnel, this skimmer never worked and no oil was ever collected in the tank. The tank was assumed to be empty and was filled with sand in 1985, before current underground storage tank (UST) rules became effective. The skimmer system was disabled and was replaced by floating baffles with oil-absorbant booms. These are currently used and are disposed of in roll-off boxes and sent to Area Disposal.

DATES OF OPERATION: 1983 to 1985.

WASTES MANAGED: Although this tank was part of an oil skimming system, no wastes were ever accumulated in the tank, according to facility personnel.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: None (the tank has never contained wastes).

SWMU NUMBER: 21

SWMU NAME: Underground Storage Tank at Tank Farm

SWMU DESCRIPTION: A 1,000-gallon underground storage tank on the west side of the tank farm (Figure 2) was originally connected to an oil skimmer associated with a sump. The sump drained to the wastewater treatment plant. This tank was blocked off and filled with sand in 1985 before the current UST rules became effective. The tank was assumed to be empty at the time it was filled with sand.

DATES OF OPERATION: 1983 to 1985.

WASTES MANAGED: Although this tank was part of an oil skimming system, no wastes were ever accumulated in the tank, according to facility personnel.

RELEASE CONTROLS: No secondary containment or other release controls are in place for this unit.

RELEASE HISTORY: No releases from this unit are known or suspected to have occurred. No evidence of release was observed during the VSI.

MIGRATION PATHWAYS: None (the tank has never contained wastes).

PHOTOGRAPH NO.: 20

AOC NUMBER: 1

AOC NAME: ELPO Material Spill Area

AOC DESCRIPTION: A release of ELPO paint pigment occurred on December 5, 1984. According to facility personnel, 50 to 75 gallons of product was released when a truck driver delivering the pigment pushed a rod through an open valve and through frozen product to obtain a small sample. The spill occurred in a concrete courtyard on the south side of the facility, immediately east of the Fan Farm (Figure 2). Facility personnel washed the spilled product down a nearby storm drain. All resulting runoff was then isolated in the empty stormwater retention pond. A lead-contaminated sludge settled out, and the liquid portion was pumped to the wastewater treatment plant. The top ten inches of sludge, which had frozen, were removed and were placed on the coal storage pad. In June, the remaining 1220 cubic yards of sludge was disposed of off site. The concrete where the spill occurred was removed and replaced in 1985. The storm drain where the spill occurred was permanently rerouted to the wastewater treatment plant.

DATES OF OPERATION: 1984 to 1985.

WASTES MANAGED: Lead contaminated sludge (1220 cubic yards) and concrete were both sent off site for disposal. The lead-contaminated sludge was sent to Peoria Disposal, and the concrete was disposed of as nonhazardous.

RELEASE CONTROLS: Not applicable.

RELEASE HISTORY: This release occurred on December 5, 1984.

MIGRATION PATHWAYS: Released pigment migrated through storm drains into the stormwater retention pond. No environmental media were impacted.

PHOTOGRAPH NO.: 4

AOC NUMBER: 2

AOC NAME: Gasoline Release Area

AOC DESCRIPTION: A gasoline release occurred in late 1984 when pinpoint electrolysis caused holes in an underground gasoline product line (Reference 16). The gas line runs from the tank farm overhead through the plant and passed underground to pass under the wall of the facility. It then served an outside fuel pumping area in the Paint and Mechanical Yard, outside the northwest corner of the main plant building. According to facility personnel, the line gathered a charge as it passed through the plant and was grounded as it passed through the lime-stabilized backfill, creating a corrosive environment. Gasoline was released through the underground portion of this pipe into an area of blasted bedrock (Figure 2). The leak was originally discovered as a result of 5,000 gallons of gasoline found to be missing in September 1984. Gas fumes were reported in the release area, and the asphalt outside the building in that area was found to be degraded from beneath. Free product was found in the backfill and the leak was discovered. Free product was also found in bedrock and in groundwater. The faulty section of pipe was immediately replaced by an aboveground pipe. Sections of concrete and asphalt were also replaced, and the fuel pumping station was relocated. Contaminated concrete, asphalt, and soil were sent to Peoria Disposal.

General Motors has voluntarily undertaken all response to this release. The initial site investigation was conducted in November and December 1984, including excavation and installation of monitoring wells. The plume was determined to occur on site, largely beneath the main plant building. The areal extent of contamination is depicted in Appendix L. A total of approximately 30,000 gallons of gasoline was released, according to facility personnel. In 1985 a report describing the extent of contamination and the remedial options was sent to MDNR. The selected remedial action involved injection, recovery, and venting with bacteriological enhancement. This process involved injection of groundwater with peroxide and nitrogen added. The final Remedial Action Plan was dated March 20, 1986. In July 1987 a construction permit and Underground Injection Control permit number UI-0000003 were issued for nine injection wells, nine recovery wells, and a groundwater treatment facility for recovery of gasoline from under the assembly plant. Well locations are depicted in Appendix L. Seventeen observation wells and nine vent wells were also installed. The remediation systems began operation that same month. A cross-section showing strata and groundwater level, and a piezometric surface elevation map are presented in Appendix L. As of the second quarter of 1989, the system had been successful in removing or degrading 71,955 pounds of gasoline, according to a report prepared by John Mathes & Associates, Inc., the remedial contractor. By this time, detected levels of contaminants had dropped significantly and shutdown planning was in progress. The goals of the Remedial Action Plan were projected to potentially be achieved by the end of 1989. The Remedial Action Plan states that "remedial action for the gasoline spill at GM's Wentzville Center will be complete when nutrient breakthrough occurs in the gasoline impacted zone." Analytical data from wells installed in association with the release are presented in Appendix L.

In the last quarter of 1989, higher hydrocarbon concentrations began to be detected. It was not clear whether the newly detected contamination was part of the same plume, or whether a second plume had been detected. System shutdown was delayed.

By May 1990, 84,504 pounds of gasoline were reported to have been removed or degraded (Reference 17). The remedial contractor determined that the goals of the Remedial Action Plan had been achieved, based on analytical results, nutrient levels, and microbial populations. The phased shutdown of the remediation system began in April 1990, and was conducted in accordance with the Remediation Completion Plan approved by the MDNR. According to this plan, the system would be dismantled and removed if no statistically significant increases in groundwater contaminant levels were detected after three months of inactivity. Although third quarter 1990 monitoring did show increases, they were determined by the remedial contractor to be not statistically significant, and dismantling of the system ensued.

The final step of the remediation completion involves eight quarters of quarterly confirmatory groundwater monitoring, to be completed in July 1992. All wells remain in place. Fifteen wells are sampled on a quarterly basis. If no statistically significant increases in benzene, toluene, xylene, total petroleum hydrocarbons or total organic carbon are detected during the two-year period, all wells will be closed. To date, the remedial contractor has reported no statistically significant increases in detected contamination.

The MDNR reportedly plans to conduct a review of the success and status of the remediation toward the end of the monitoring period. Analytical data will be reviewed and statistically analyzed. The MDNR appears to be concerned about the fact that system shutdown took place following and/or during periods of detected increases in contaminant concentration. The MDNR does not, however, intend to override the provisions of the Remediation Completion Plan.

DATES OF OPERATION: The release was originally detected in September 1984. Remediation commenced in 1987 and terminated in 1990. Monitoring continues until July 1992.

WASTES MANAGED: Gasoline-contaminated backfill material, soil, concrete, asphalt, and groundwater.

RELEASE CONTROLS: None.

RELEASE HISTORY: Described above.

MIGRATION PATHWAYS: Released gasoline migrated to groundwater, backfill material, and soil.

PHOTOGRAPH NO.: 30, 31, 32, 33, 46

REFERENCES

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- U.S. Environmental Protection Agency, Region VII, Environmental Services Division, Air Compliance Inspection Reports, General Motors Wentzville Assembly Center, Wentzville, Missouri, October 1985, March 1989, August 1991.
- 3. Notices of Violation, Letters to G.M. Assembly Division, General Motors Corporation, Wentzville Plant, from Morris Kay, Regional Administrator, Environmental Protection Agency, Region VII, March 1984, July 1984.
- G.T. Mehan, Missouri Department of Natural Resources, Letter to Mr. R.G. Howden, General Motors Corporation, Wentzville Assembly Center, Re: Permit Number 1089-003, St. Charles County, October 13, 1989.
- 5. M.S. Ardakani, Missouri Department of Natural Resources, letters to Mr. Michael Price, General Motors Assembly Plant, October 1984, July 1987.
- 6. J. Blodgett, University of Missouri St. Louis Urban Information Center, letter to D. Cooper, Jacobs Engineering Group Inc., January 6, 1992.
- 7. Water Utilities Superintendent, Wentzville, Missouri, personal communication, January 3, 1992.
- 8. Jim Van Dyke, Missouri Department of Natural Resources, personal communication, January 8, 1992.
- 9. Water Resources, St. Louis Area Missouri, Water Resources No. 30.
- 10. Soil Summary of St. Charles County, Missouri, United States Department of Agriculture Soil Conservation Service.
- 11. Meeting Notes-Agenda for Gasoline Leak Remediation Meeting, General Motors Wentzville Assembly Center, October 4, 1988.
- 12. Paleozoic Succession in Missouri, Part 4, Mississippian System, Report of Investigation No. 70.
- 13. U.S. Department of Commerce, Annual, Climatological Summaries, Weldon Spring Exp. Farm, Missouri, 1970 to 1990.
- 14. Wentzville Municipal Airport, personal communication, January 6, 1992.
- 15. Missouri Department of Conservation, Rare and Endangered Species of Missouri, 1991.
- 16. K.L. Deason, Missouri Department of Natural Resources, letter to Richard Laux, Missouri Department of Natural Resources, October 11, 1988.
- 17. John Mathes & Associates, Inc., Status Report, Second Quarter 1990, General Motors Wentzville, Gasoline Leak Remediation, July 1990.
- 18. John Mathes & Associates, Inc., Hydrogeologic Investigation Subsurface Gasoline Spill, GM Assembly Division, Wentzville Plant, April 1985.

TABLES

TABLE I WASTES MANAGED AT THE GENERAL MOTORS WENTZVILLE ASSEMBLY CENTER

Waste Management <u>Area</u>	Wastestream	MDNR Wastestream No.	EPA Waste Code	Amount Generated	Receiving Facility
Satellite Accumulation Areas	Paper paint filters and rags	800	D001 F001/F003	250 gal/mo	Chem Waste Management -
	"Alternate fuel mix": paint, solvent, oil, glycols, gasoline. Past waste streams now included in 010; fluid line flush solvents, waste chlorinated solvents, waste paint	010 (past no. 002) (past no. 004) (past no. 007)	D001 F003	5500 gal/mo	Safety Kleen (Clarksville, MO) to cement kiln for incineration
	"Alternate fuel mix" still bottoms	011	D001 F001/F003	2000 gal/mo	Chem Waste Management - incinerated
	Black seam sealer	014	D001 F001/F003	200-400 gal/mo	Chem Waste Management - incinerated
	Solvent- contaminated rags	019	D001	500 gal/mo	Chem Waste Management - incinerated
General Refuse Accumulation Areas	General refuse	non-hazardous	not applicable		Area Disposal
	White seam sealer	non-hazardous deleted 1988 (past no. 015)	(past D008) not applicable	200-400 gal/mo	Peoria Disposal
Safety-Kleen Parts Washers - SWMU 1	Naphtha, facquer thinner, cleaning liquid cpd.	017	D007/D018/D001	60 gal/mo	Safety-Kleen (St. Charles, MO)

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TABLE 1 (continued)

Waste Management <u>Area</u>	Wastestream	MDNR Wastestream No.	EPA Waste Code	Amount Generated	Receiving Facility
Body Washer Dip Tank - SWMU 2	Sludge	non-hazardous, deleted 1985 (past no. 012)	not applicable	110 gal/yr	Area Disposal
Phosphate Wash - SWMU 3	Sludge	non-hazardous, deleted 1986 (past no. 009)	(past F006) not applicable	20-40 yd³/mo	Area Disposal
ELPO Dip Tank - SWMU 4	Filters, sludge	005	D008	100-200 gal/mo	Peoria Disposal
Purged Thinner Tank - SWMU 5	Purged thinner	100	D001/F003/F005	8000 gal/mo managed only	Michigan Recovery for distillation
Paint Sludge Pits - SWMU 6	Central sludge	non-hazardous	not applicable	total of 100 yd³/mo	Area Disposal
Paint Sludge Filter - SWMU 7	Central sludge	non-hazardous	not applicable	for central sludge	Area Disposal
Clearcoat Operations at Paint Booths - SWMU 8	Clearcoat solid residues	non-hazardous	not applicable	990 gal/yr	Area Disposal
Satellite Paint Booths - SWMU 9	Paint sludge	non-hazardous	not applicable	20 yd³/mo	Area Disposal
Grit Separator - SWMU 10	Grit separator sludge	non-hazardous	not applicable		Area Disposal
Waste Oil Tank - SWMU 11	Oil-water mix	non-hazardous (past no. 018)	not applicable	2000 gal/yr	recycled by application to coal pile
Filter Presses - SWMU 12	Filter press sludge	non-hazardous deleted 1986 (past no. 006)	(past F006) not applicable	150 yd³/mo	West County Disposal - landfilled
Stormwater Retention Ponds - SWMU 13	Runoff	non-hazardous	not applicable	varies	released through outfalls
	Oil absorbant booms	non-hazardous	not applicable	varies	Area Disposal

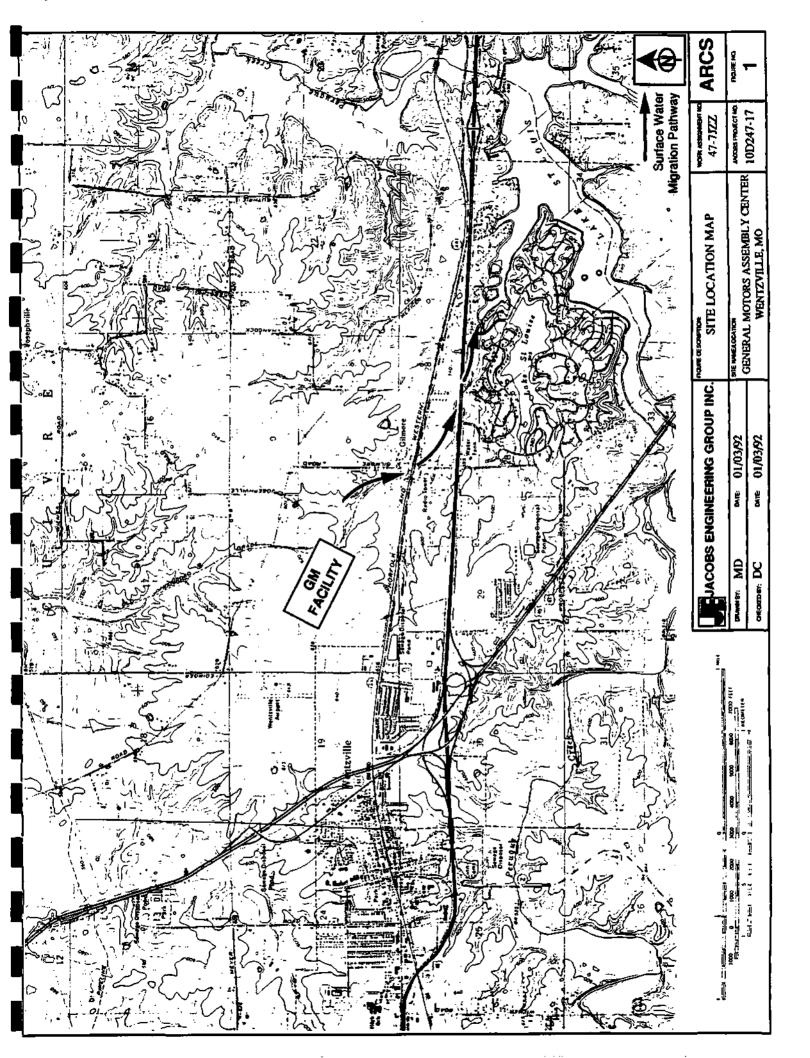
TABLE 1 (continued)

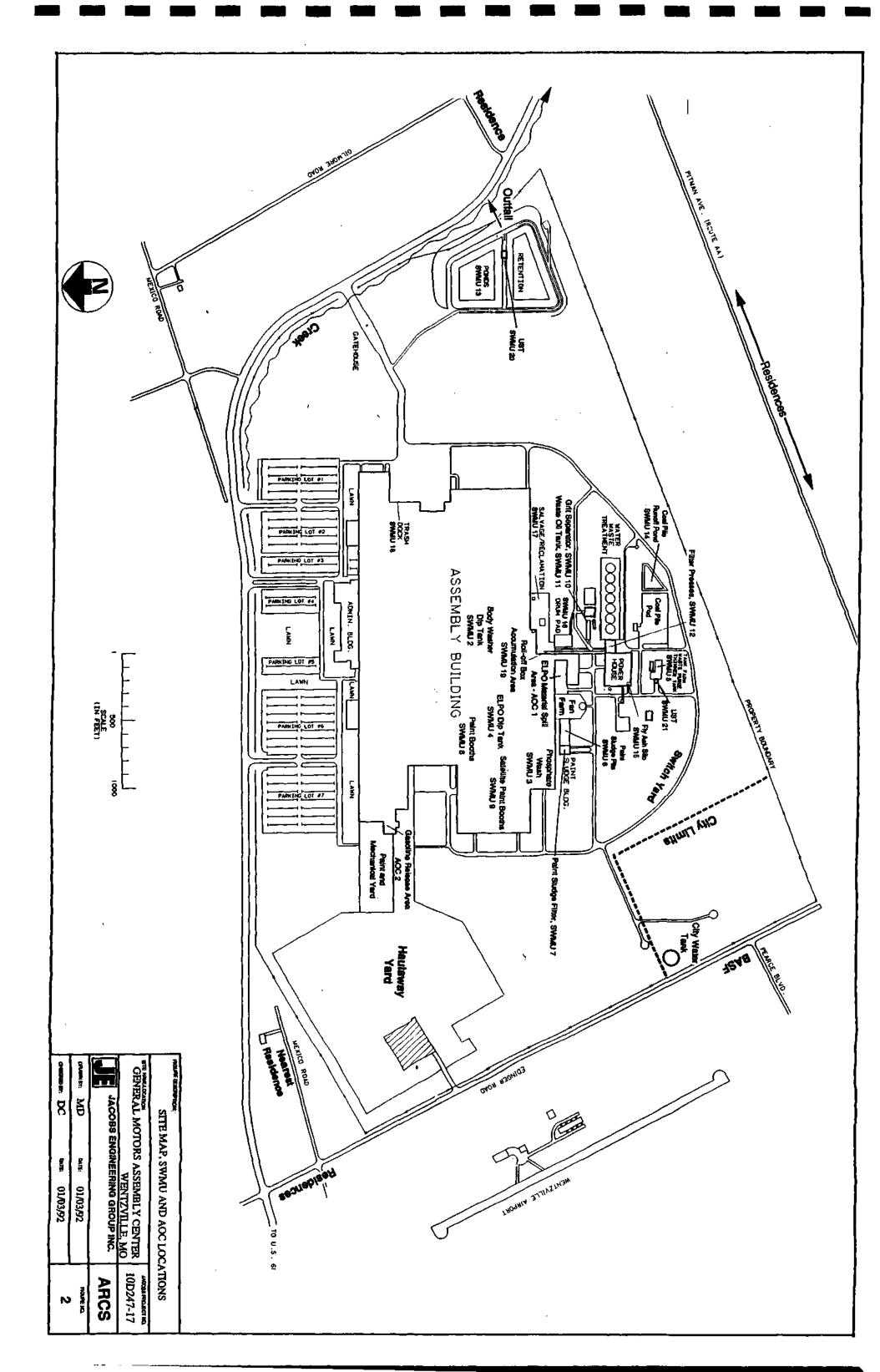
Waste Management <u>Area</u>	Wastestream	MDNR Wastestream No.	EPA Waste Code	Amount Generated	Receiving Facility
Coal Pile Runoff Pond - SWMU 14	Runoff	non-hazardous	not applicable	varies	Piped to WWTP
Fly Ash Silo - SWMU 15	Fly Ash	non-hazardous	not applicable	40 yd ³/mo	West County Disposal - landfilled
Drum Storage Pad - SWMU 16	Drummed waste	008, 010, 011, 014, 019, 005	D001/D008 F001/F003/F005	2400 drums managed/yr	Chem Waste Management, Safety Kleen
Salvage and Reclamation Yard - SWMU 17	Waste metal	non-hazardous	not applicable	unknown	to GM foundries for recycling
Trash Dock - SWMU 18	General refuse	non-hazardous	not applicable	7500 yd ³ compacted	Laidlaw
Roll-Off Box Accumulation Area - SWMU 19	Roll-off boxed waste	005, non-hazardous	unknown	management only	various
	Initial solvent and cleaning stripper resin flush	(past no. 003)	unknown	one-time only	unknown
	Methylene Bis Diisocyanate	(past no. 013)	unknown	150 gal/mo deleted 1988 no longer used	unknown
	ELPO spill residual sludges	(past no. 016)	unknown	one-time only, 1985	Peoria Disposal
	Gas-contaminated soil	(past no. 020)	unknown	one-time only, 1985	Peoria Disposal
	Contaminated antifreeze	(past no. 021)	unknown	one-time only, 5-10,000 gal.	recycled
	Oily emulsion	(past no. 023)	unknown	11/88-7/89 only 260,000 gat	recycled by Detroit Petro Chem

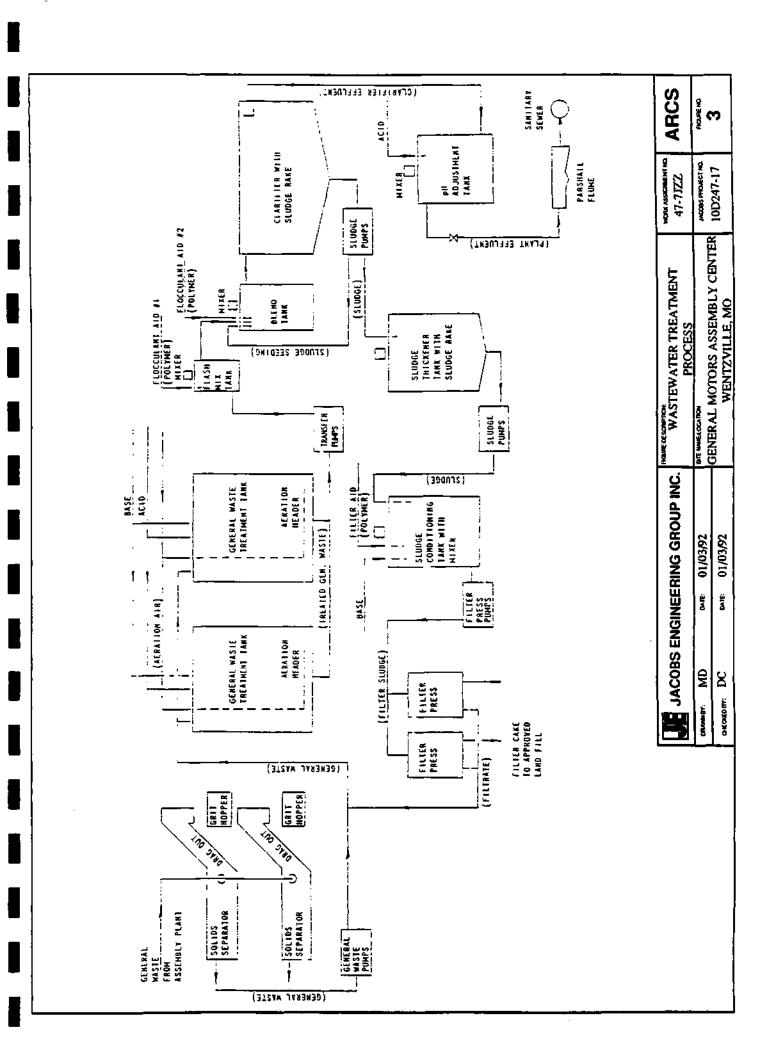
TABLE 2 SWMU IDENTIFICATION SUMMARY

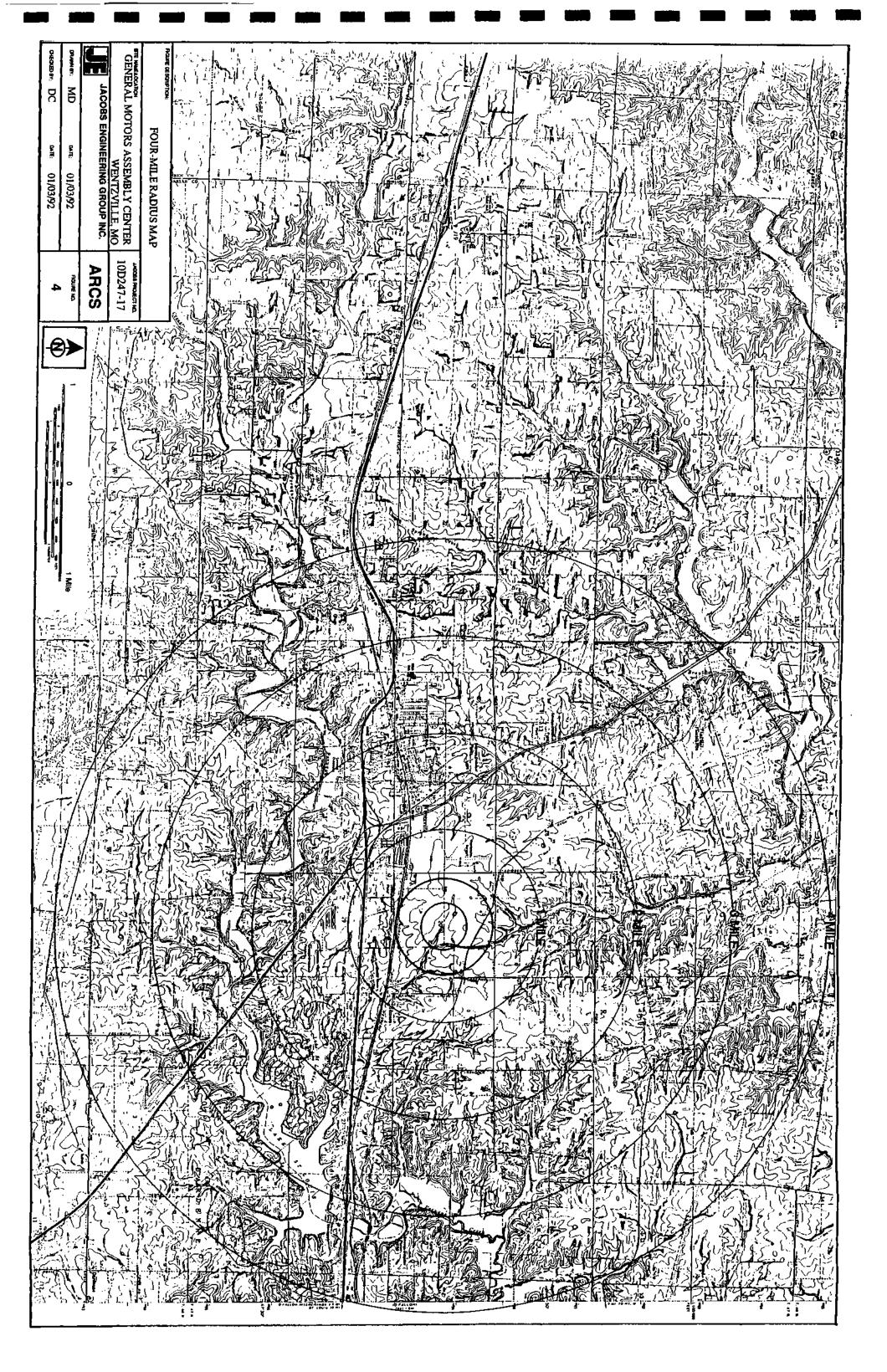
SWMU/AOC NUMBER	NAME OF <u>UNIT</u>	YEARS OF OPERATION	WASTES MANAGED	EVIDENCE OF RELEASE
SWMU 1	Safety Kleen Parts Washers	9	Naphtha, lacquer thinner cleaning liquid cpd.	none
SWMU 2	Body Washer Dip Tank	9	Sludge	none
SWMU 3	Phosphate Wash	9	Sludge	none
SWMU 4	ELPO Dip Tank	9	Filters, sludge	none
SWMU 5	Waste Purged Thinner Tank	9	Purged thinner	none
SWMU 6	Paint Sludge Pits	9	Central sludge	none
SWMU 7	Paint Sludge Filter	9	Central sludge	none
SWMU 8	Clearcoat Operations at Paint Booths	9	Clearcoat solid residues	none
SWMU 9	Satellite Paint Booths	9	Paint sludge	none
SWMU 10	Grit Separator	9	Grit separator sludge	none
SWMU 11	Waste Oil Tank	9	Oil-water mix	none
SWMU 12	Filter Presses	9	Filter press sludge	none
SWMU 13	Stormwater Retention Ponds	9	Runoff	none
SWMU 14	Coal Pile Runoff Pond	9	Runoff	none
SWMU 15	Fly Ash Silo	9	Fly ash	none
SWMU 16	Drum Storage Pad	9	Drummed waste	none
SWMU 17	Salvage and Reclamation Yard	9	Waste metal	none
SWMU 18	Trash Dock	9	General refuse	none
SWMU 19	Roll-Off Box Accumulation Area	9	Roll-Off boxed waste	none
SWMU 20	UST at Stormwater Retention Ponds	2	None	none
SWMU 21	UST at Tank Farm	2	None	none
AOC 1	ELPO Material Spill Area	N/A	Lead-contaminated sludge, concrete	none remaining
AOC 2	Gasoline Release Area	8	Gasoline- contaminated backfill, soil, concrete, asphalt, groundwater	none visibly remaining

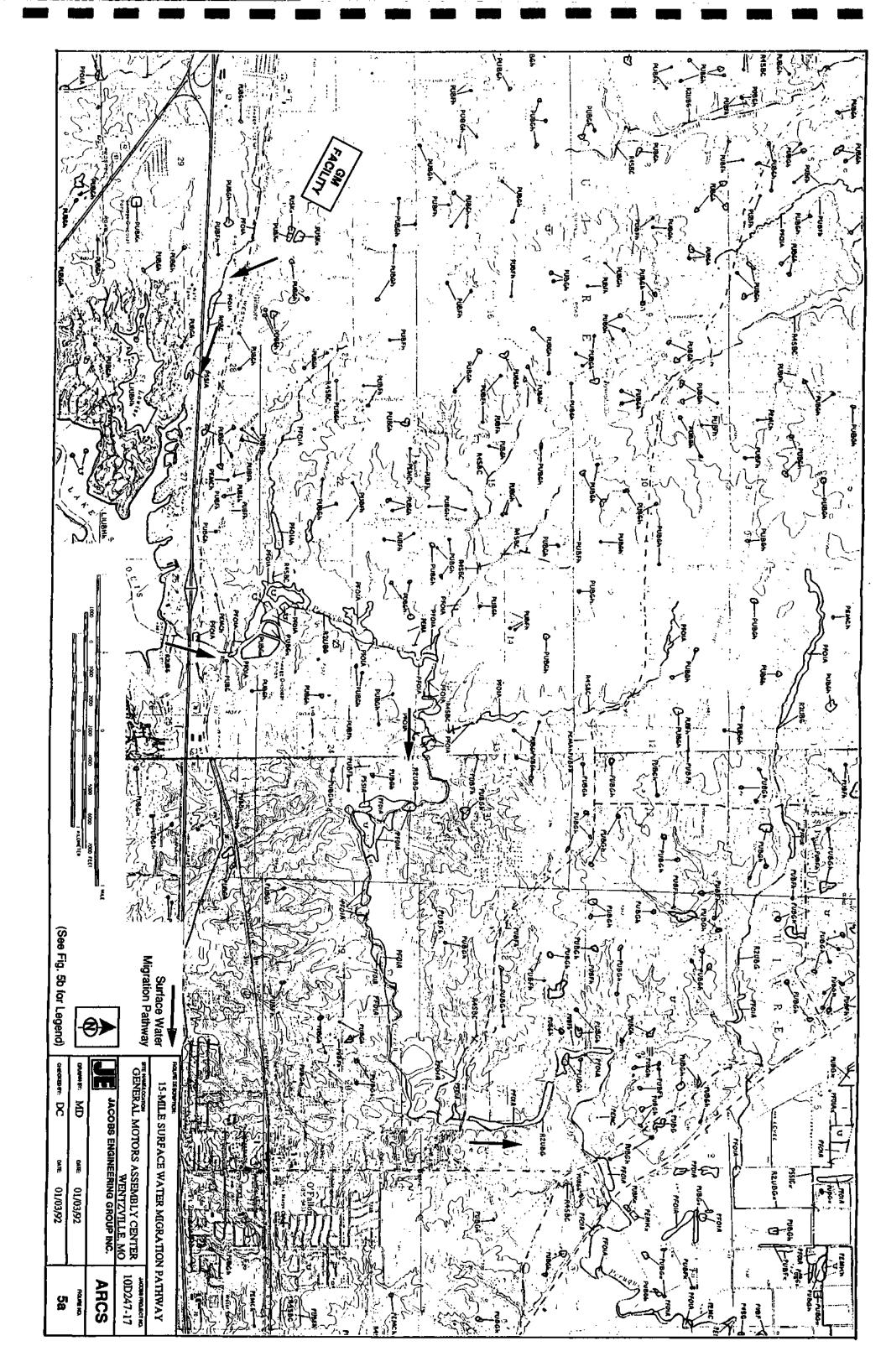
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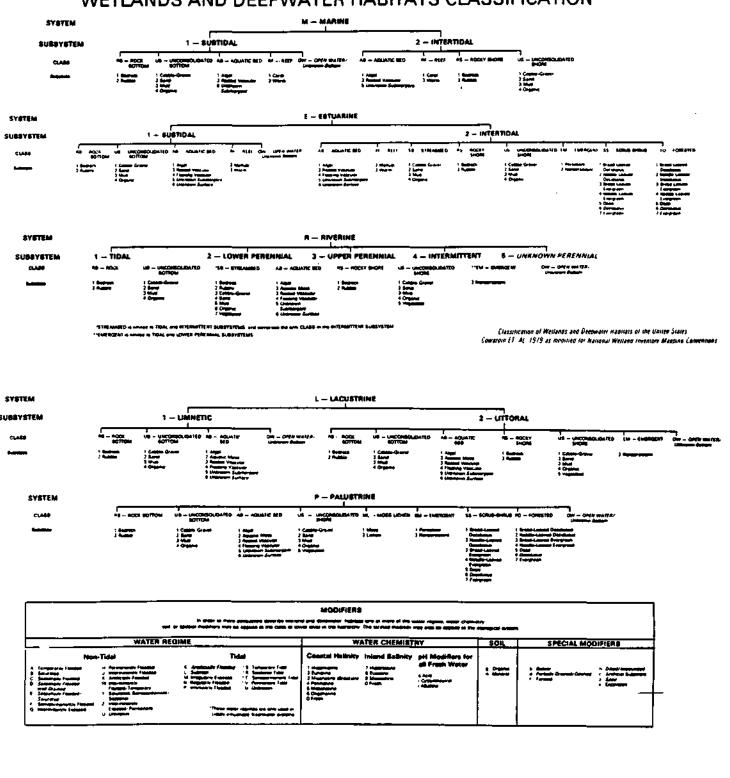








WETLANDS AND DEEPWATER HABITATS CLASSIFICATION



JACOBS ENGINEERING GROUP INC.		ING GROUP INC.	LEGEND FOR 15-MILE SURFACE WATER	10D247-17		
QFAMALSY:	MD	QATE:	01/03/92	GENERAL MOTORS ASSEMBLY CENTER	ARCS	FOURE NO.
o com in	PF: DC BATE 01/03/92		01/03/92	WENTZVILLE, MO	5b	

				Aquifed	Thick-	Downant	
<u>System</u>	Series	Group	Formation .	group	(feet)	lithology	Vacor-bearing cheracte
	Bolocene		Allerias /		0-130	Sand, gravel, silt, and clay.	Some wells yield more than 2,000 gps.
Maternary	Plaiscocapa		Locas		0-110	Silt	
(======================================			Glacial till		0-55	Pubbly clay and silt.	Essentially not water fielding
	Missourise	Pleasencon	Undifferentiated	1	0-75	Shales, siltatones, "dirty" sandstones,	Community yields very
	.	Marmeton	Undifferentiated	. !	0-200	coel beds and this	smil quantities of water to walls.
Penasy Lvanten	Descricesian Atokan	Cherokee	Undifferentiated	4	0-100	Lignetone bede.	Yields range from
	Violen		CORTILIAL AGE TREAD	\			0-10 gpm.
			Sts. Genevieve Formation	1	0-160	Armillaceous to	
	Heranecian		St. Louis Limestone	- '	- 821RB	arenaceous linestone.	
	(Arthurthur	ļ	Salen Formation	1	0-180	1	
			Warsaw formation	1	0-110	1	
			Burlington-Kooksk Linestone	١.	0-240	Cherty Limestone	
Miesisaippisa	Osagean		Form Glea Pormation	1	0-105	Red limestone and shale.	Yields email to moders
	Kinderhookian	Chouteau	Undifferentiated]	0- L22	Limestons, dolomitic limestons, shale, and eiltstons.	vells. Tields range from 5 to 50 gpm. Bigher yields are
Devonian	Opper	Sulphur Springs	Bushberg Sandscone Gien Park Linescone	7	0-60	Limestone and sandstone	
	<u> </u>	<u> </u>	Greesy Creek Shale	1	0-50	Fissile, carbonaceous]
Stiurien			Quifferentiated]	0-200	Cherry limescome.	
			Maquokata Shele		0-163	Silty, calcareous or dolomitic shale.	Probably constitutes a conficing influence water coverent.
	Cincinnation		Cape Limestone	3	0-5	Argillaceous linestone.	
		1	Kimerick		0-145	Messive limestons	1
			Decorat Formation	Í	0-50	Shale with interbedded	Yields small to moder
	,		Plattin Formation	- 2	9-240	limetone. Pinely crystalline limetone.	quantities of water walls. Yields range from 3 to 50 gpg.
	Chemplainian	İ	Rock Leves Formation	╡	0-93	Dolomics and limestone,	
	ļ	Į.	Josephia Dolomita	ጚ	0-135	Primarily argillaceous dologite.	confining bed local
Ordovician			St.: Peter Senistres	<u> </u>	0-160		<u> </u>
			Everton Formation	,	0-130	Silty sandstone, cherry limsecone grading upward into quartrose sandstons.	Vielde moderate quant: ties of water to wel Tields range from 10-160 gpm.
		 	Powell Dolomite	+	0-150		Yields smell to
		1	Cotter Dolomite	_	0-320	Sandy and charty	large quantities of
	Conadian	}	Jefferson City	7	0-225	dolomites and	water to walls,
	ļ	i	Dolomite	4	L	eandstone.	Tields range from it
	i	1	houbidons Formation	4	0-177 0-280	4	to 300 gpm. Upper part of equifer grow
			Onter Seniste Cunter Senisten	4	0-260		yields only emil
	<u> </u>	ļ		<u> </u>			wells.
)		Potest Dolomite	-	0-172	Cherty dolomites, silt-	Yields moderate to large quantities of
Cambrian	Оррек	Elvine	Darby-Doerun	٦,	0-163	PCOMOS, SANDECOMO,	vater to wells.
		==	Dolomite	- َ ل		and shele.	Yields cange from
			Davie Formation	1	0-150	4	10 to 400 gpm.
			Bonneterre Formatio	*	245-385	4	1
recembries	 		Lamotte Sandetone		2334	Igosous and meramorphic	Does not yield water
Tecamotran						rocks.	to wells in this are

 $[\]underline{\underline{1}}/$ Basel part may be of Pleistocene age.

NOTE: Stratigraphic momenclature may not necessarily be that of the U.S. Geological Survey.

	JACOBS ENGINEERING GROUP INC. GENERALIZED STRATIGRAPHIC COLUMN FOR ST. LOUIS, ST. CHARLES, AND JEFFERSON COUNTIES, MISSOURI					10D247-17	
1	ORVINAL SY:	MD	DATTE:	01/03/92	GENERAL MOTORS ASSEMBLY CENTER	ARCS	Manus no.
	OF COMED IN	* DC	CATIE	01/03/92	WENTZVILLE, MO	Anos	6

APPENDICES

APPENDIX A VSI MEETING ATTENDANCE LIST

GM ASSEMBLY CENTER, WENTZVILLE VISUAL SITE INSPECTION DECEMBER 14, 1991

ATTENDEES

	NAME	AFFILIATION	TITLE
1. Debra	2 Cooper	Jacobs Engineering	Env. Scientist
2. Stepha	me Doolan	Jacobs /EPA	Chemist
3. Wy	H	- 5m/wz	Engy Teel
4. Melios	se Jones	GN/WZ	Enviro. Enge
5.		•	-
6.			
7.			
8.			
9.			
10.			

APPENDIX B RECEIPT FOR DOCUMENTS

GM ASSEMBLY CENTER, WENTZVILLE VISUAL SITE INSPECTION DECEMBER 11, 1991

RECEIPT FOR DOCUMENTS

TITLE

DATE

1. COPY of 1991 Part A Submission of revisions

2. most recent for Fermit

10-13-89

was recent NPDES permit

1988

4. GM/WZ Master wastestream Lag

5. Solid Waste Regulatory Summary Report 8-14-9

6. PDC labs analytical reports

7. Interim Closure Plan

8-8-88

8. Safety Keen Parts Washer Log

12/10/9

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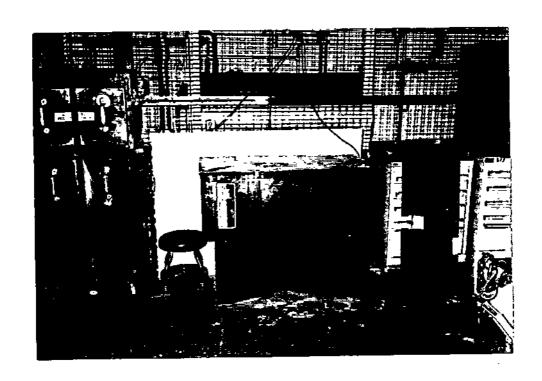
Deba R Coops Doobs Engineering

12/11/91

Marity Bur Enter

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APPENDIX C PHOTOGRAPH LOG



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Safety Kleen Parts Washer.

Location:

Tractor Repair Shop.

Date:

12/11/91

Time:

1030

Photographer:

S. Doolan

File:

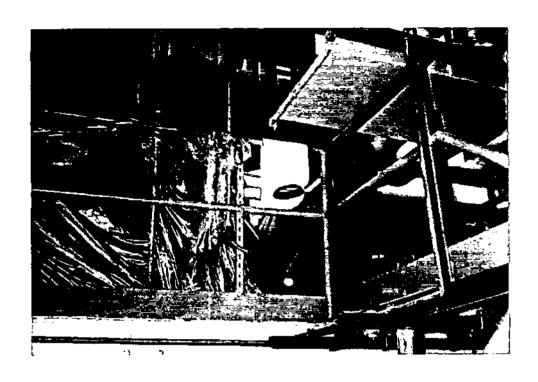
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

ELPO tank filter (hanging on railing).

Location:

Date:

12/11/91

Time:

1045

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Side of ELPO Tank.

Location:

Date:

12/11/91

Time:

1045

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

ELPO Material Spill Area.

Location:

Date:

12/11/91

Time:

1050

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Phosphate Wash Tank Filter.

Location:

Date:

12/11/91

Time:

1053

Photographer:

S. Doolan

File:

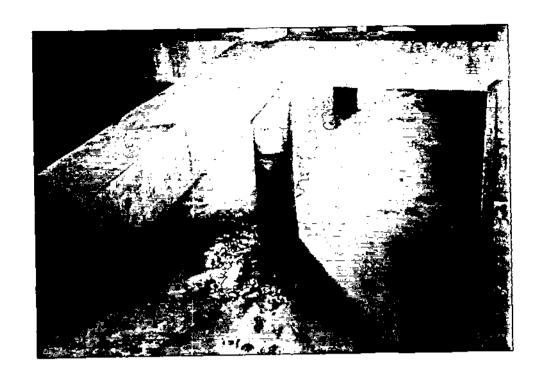
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

800,000-Gallon Paint Sludge Pit-Active.

Location:

Date:

12/11/91

Time:

1100

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

800,000-Gallon Paint Sludge Pit-Inactive.

Location:

Date:

12/11/91

Time:

1101

Photographer:

S. Doolan

File:

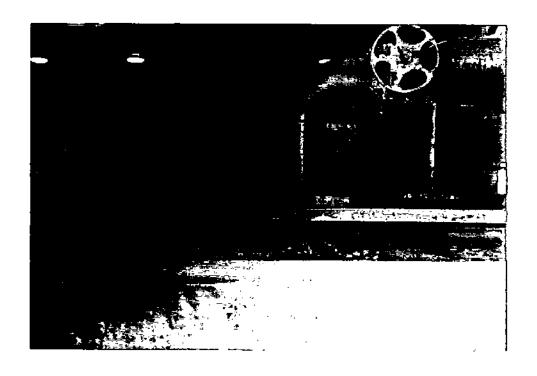
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Paint Sludge Filtering.

Location:

Paint Sludge Building

Date:

12/11/91

Time:

1110

Photographer:

S. Doolan

File:

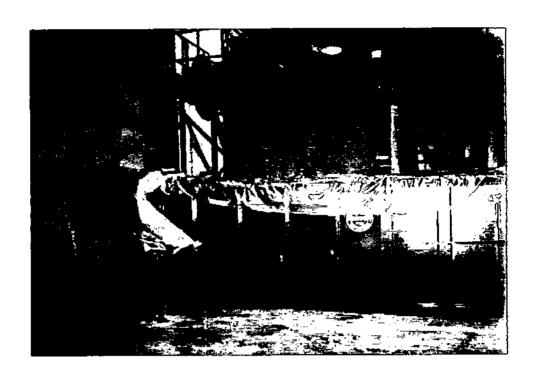
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Paint Sludge Filter, Central Sludge.

Location:

Paint Sludge Building

Date:

12/11/91

Time:

1059

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Fan Farm and Stack.

Location:

Date:

12/11/91

Time:

1112

Photographer:

S. Doolan

File:

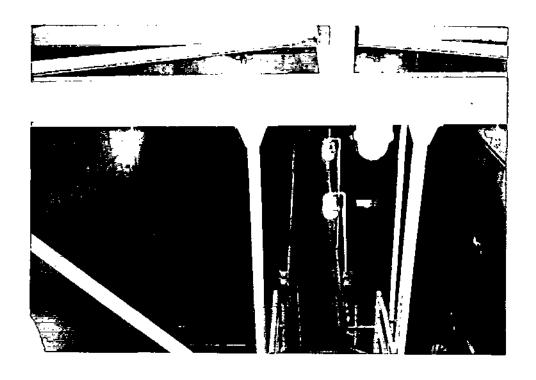
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Grit Separators.

Location:

Wastewater Treatment Plant.

Date:

12/11/91

Time:

1116

Photographer:

S. Doolan

File:

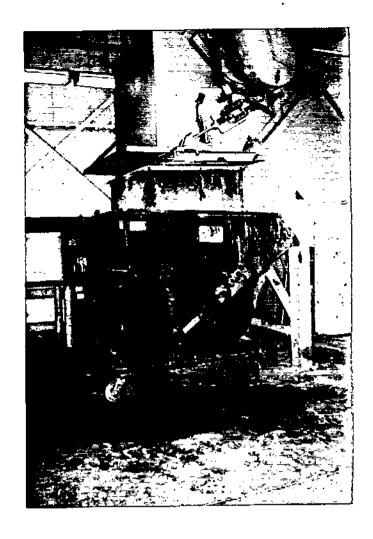
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Grit Separator Sludge Collection.

Location:

Wastewater Treatment Plan.

Date:

12/11/91

Time:

1122

Photographer:

S. Doolan

File:

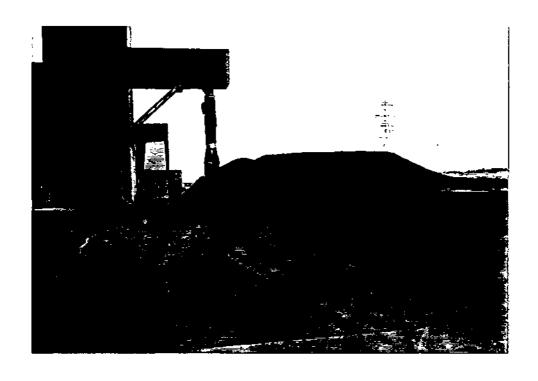
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Coal Pile.

Location:

Coal Pile Storage Pad.

Date:

12/11/91

Time:

1124

Photographer:

S. Doolan

File:

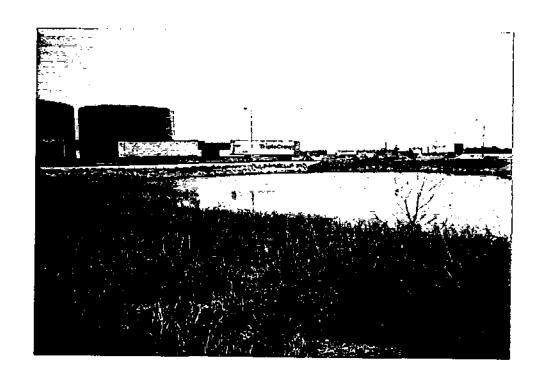
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Stormwater Runoff Collection Pond.

Location:

Coal Pile Storage Pad.

Date:

12/11/91

Time:

1132

Photographer:

S. Doolan

File:

N/A

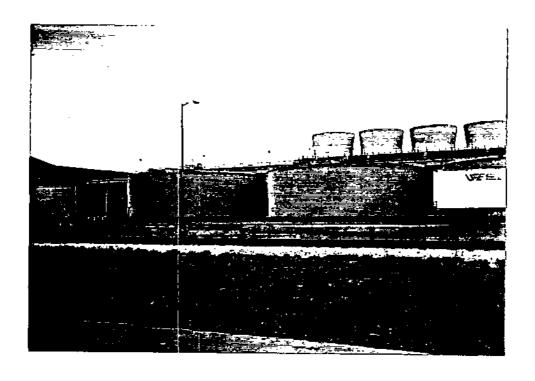
Film:

ASA 200

Witness:

D. Cooper

Direction of Photograph: Northeast



SITE NAME: General Motors Wentzville Assembly Center

Subject: Clarifiers for Wastewater Treatment Plant.

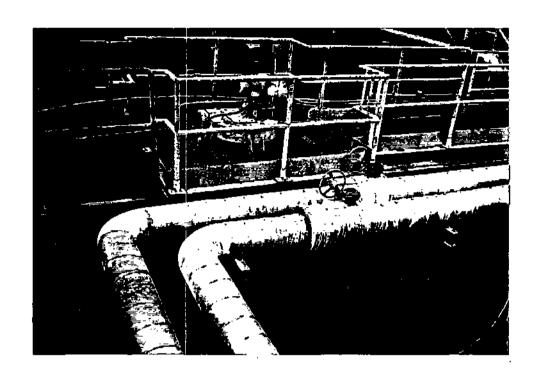
Location:

Date: 12/11/91 **Time:** 1135

Photographer: S. Doolan File: N/A

Film: ASA 200 Witness: D. Cooper

Direction of Photograph: North



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Sludge Thickener for Wastewater Treatment Plant.

Location:

Date:

12/11/91

Time:

1145

Photographer:

S. Doolan

File:

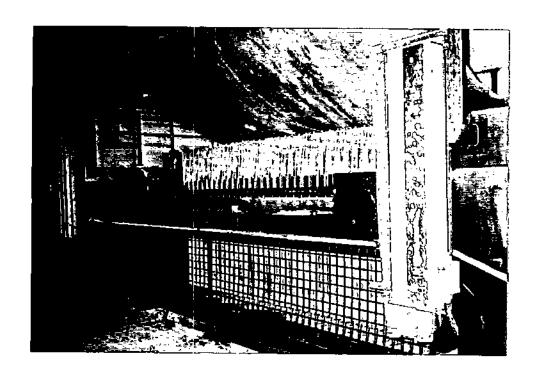
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Filter Press.

Location:

Wastewater Treatment Plant.

Date:

12/11/91

Time:

1142

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Filter Press Sludge Collection.

Location:

Wastewater Treatment Plant.

Date:

12/11/91

Time:

1140

Photographer:

S. Doolan

File:

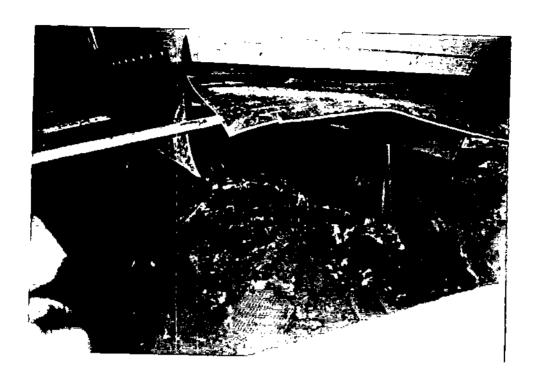
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Filter Press Sludge in Roll-Off Box.

Location:

Wastewater Treatment Plant.

Date:

12/11/91

Time:

1140

Photographer:

S. Doolan

File:

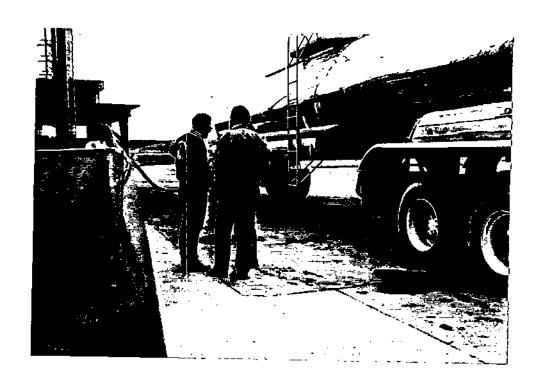
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Location of Inactive Underground Storage Tank.

Location:

Tank Farm.

Date:

12/11/91

Time:

1155

Photographer:

S. Doolan

File:

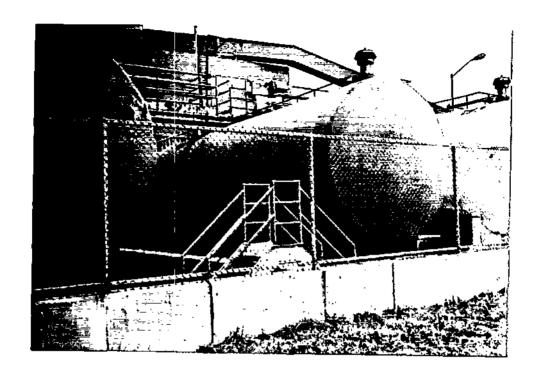
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

20,000-Gallon Waste Purged Thinner Tank.

Location:

Tank Farm

Date:

12/11/91

Time:

1200

Photographer:

S. Doolan

File:

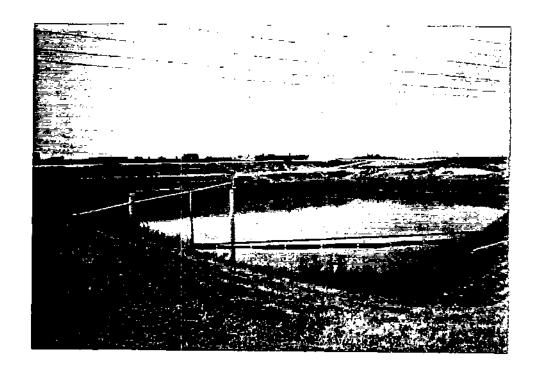
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

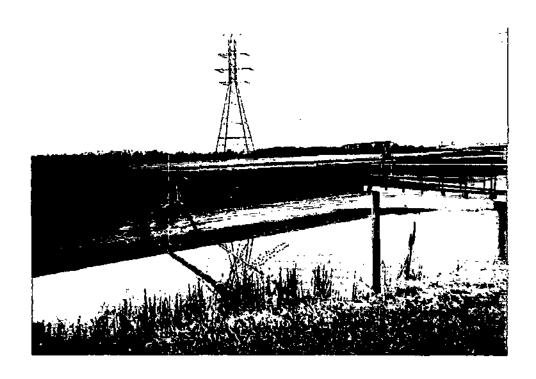
Subject: North Stormwater Retention Pond.

Location:

Date: 12/11/91 Time: 1207

Photographer: S. Doolan File: N/A

Film: ASA 200 Witness: D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

South Stormwater Retention Pond.

Location:

Date:

12/11/91

Time:

1207

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper

Direction of Photograph: Southwest



SITE NAME: General Motors Wentzville Assembly Center

Subject:

NPDES Outfall.

Location:

Date:

12/11/91

Time:

1212

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper

Direction of Photograph: Northeast



SITE NAME: General Motors Wentzville Assembly Center

Subject:

NPDES Outfall.

Location:

Date:

12/11/91

Time:

1212

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

NPDES Outfall.

Location:

Date:

12/11/91

Time:

1510

Photographer:

D. Cooper

File:

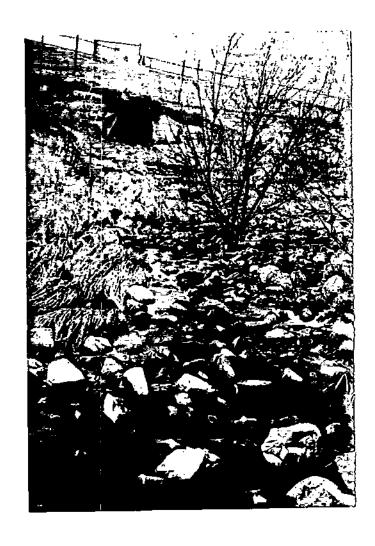
N/A

Film:

A\$A 200

Witness:

S. Doolan



SITE NAME: General Motors Wentzville Assembly Center

Subject:

NPDES Outfall.

Location:

Date:

12/11/91

Time:

1510

Photographer:

D. Cooper

File:

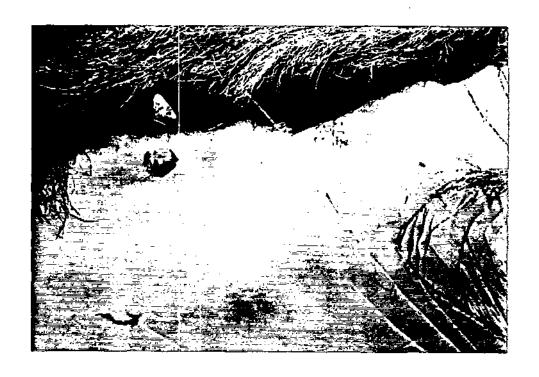
N/A

Film:

ASA 200

Witness:

S. Doolan



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Stream Flowing from NPDES Outfall.

Location:

Date:

12/11/91

Time:

1511

Photographer:

D. Cooper

File:

N/A

Film:

ASA 200

Witness:

S. Doolan



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Stream flowing from NPDES Outfall.

Location:

Date:

12/11/91

Time:

1511

Photographer:

D. Cooper

File:

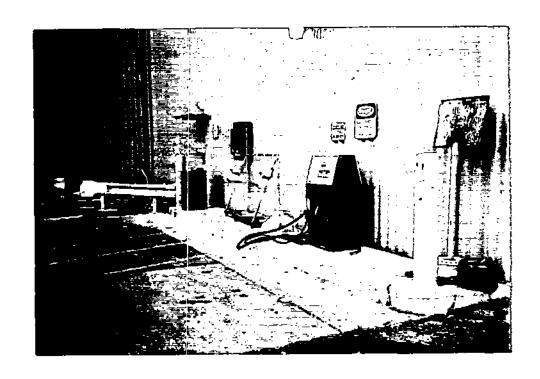
N/A

Film:

ASA 200

Witness:

S. Doolan



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Area of gasoline release.

Location:

Date:

12/11/91

Time:

1217

Photographer:

S. Doolan

File:

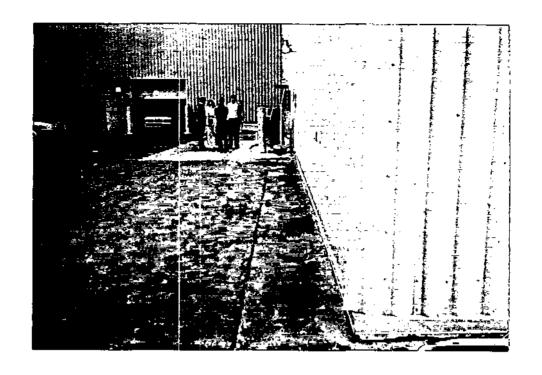
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Replaced fuel pumping area.

Location:

Area of gasoline release.

Date:

12/11/91

Time:

1230

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Replaced concrete where old gasoline line went under building wall.

Location:

Inside building-area of gasoline release.

Date:

12/11/91

Time:

1227

Photographer:

S. Doolan

File:

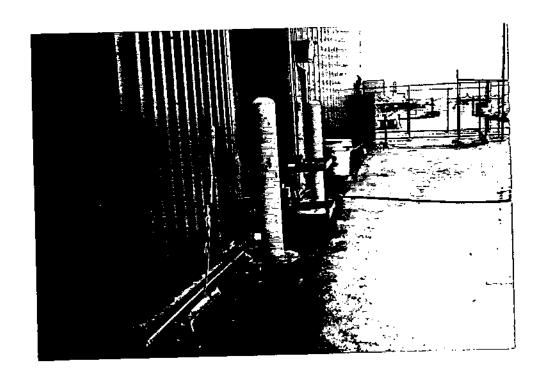
N/A

Film:

A\$A 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Replaced concrete extending 2 feet from building.

Location:

Area of gasoline release.

Date:

12/11/91

Time:

1217

Photographer:

S. Doolan

File:

N/A

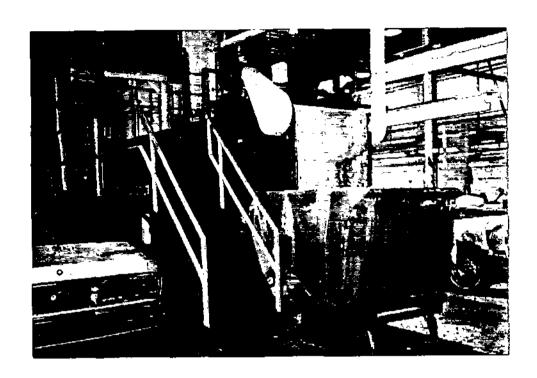
Film:

ASA 200

Witness:

D. Cooper

Direction of Photograph: South



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Paint sludge filter accumulation.

Location:

Satellite Paint Booth.

Date:

12/11/91

Time:

1229

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Drum Storage Pad.

Location:

Date:

12/11/91

Time:

1115

Photographer:

S. Doolan

File:

N/A

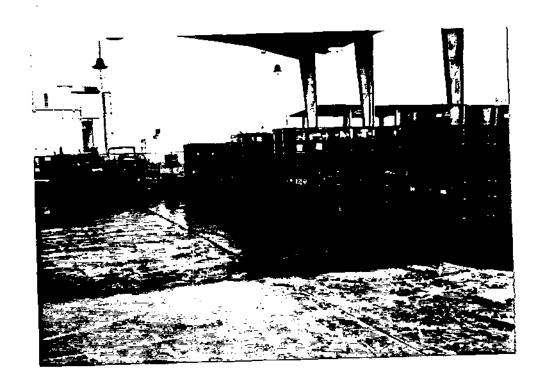
Film:

ASA 200

Witness:

D. Cooper

Direction of Photograph: Northeast



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Drum Storage Pad.

Location:

Date:

12/11/91

Time:

1235

Photographer:

S. Doolan

File:

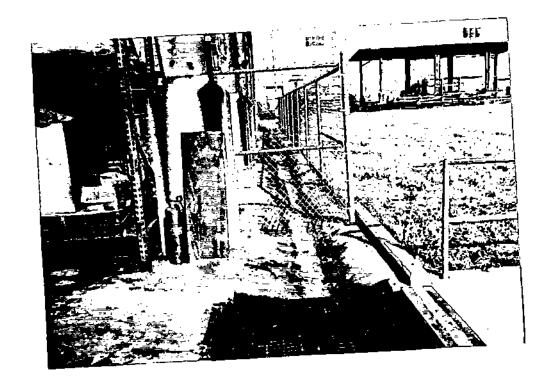
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Moat surrounding Drum Storage Pad.

Location:

View from loading dock.

Date:

12/11/91

Time:

1240

Photographer:

S. Doolan

File:

N/A

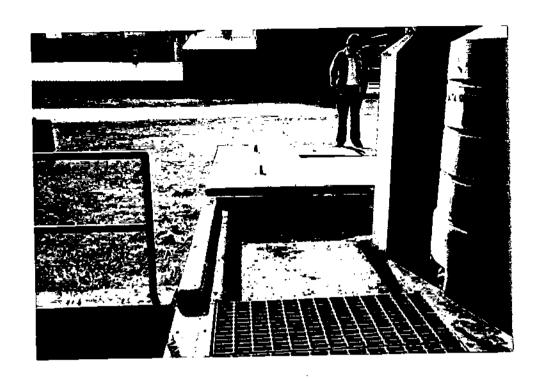
Film:

ASA 200

Witness:

D. Cooper

Direction of Photograph: North



SITE NAME: General Motors Wentzville Assembly Center

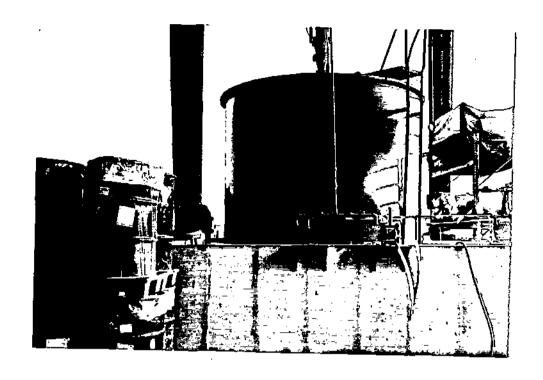
Subject: Sump box which receives flow from moat.

Location: Drum Storage Pad-View from Loading Dock.

Date: 12/11/91 Time: 1240

Photographer: S. Doolan File: N/A

Film: ASA 200 Witness: D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Hazardous Waste Tank-Inactive.

Location:

Drum Storage Pad.

Date:

12/11/91

Time:

1240

Photographer:

S. Doolan

File:

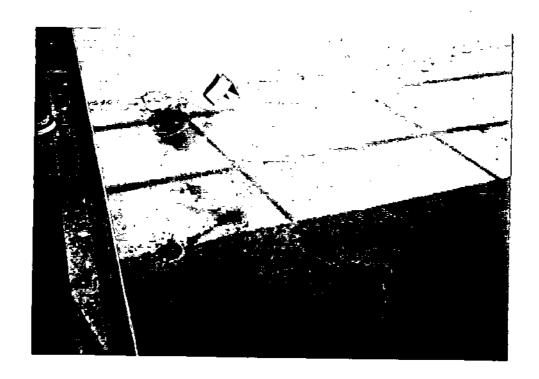
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Drain to Wastewater Treatment Plant.

Location:

Drum Storage Pad Loading Dock Driveway.

Date:

12/11/91

Time:

1245

Photographer:

S. Doolan

File:

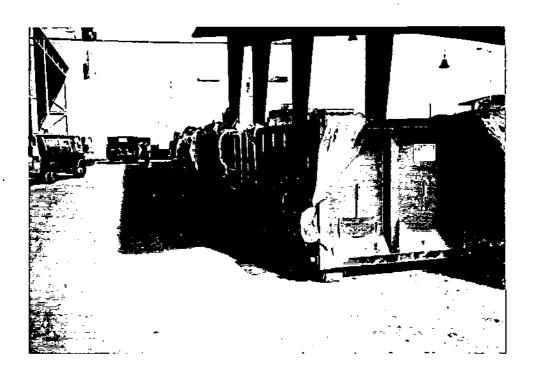
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Roll-Off Boxes on west side of Drum Storage Pad.

Location:

Date:

12/11/91

Time:

1247

Photographer:

S. Doolan

File:

N/A

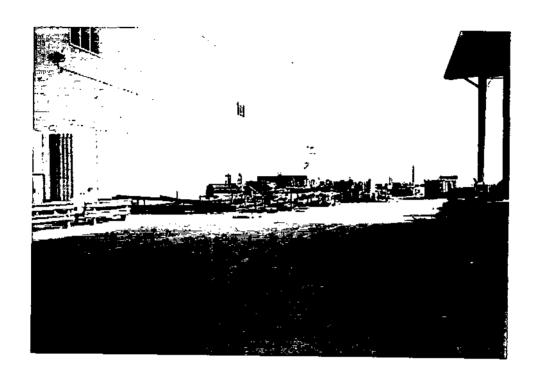
Film:

ASA 200

Witness:

D. Cooper

Direction of Photograph: North



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Salvage and Reclamation Yard.

Location:

Date:

12/11/91

Time:

1247

Photographer:

S. Doolan

File:

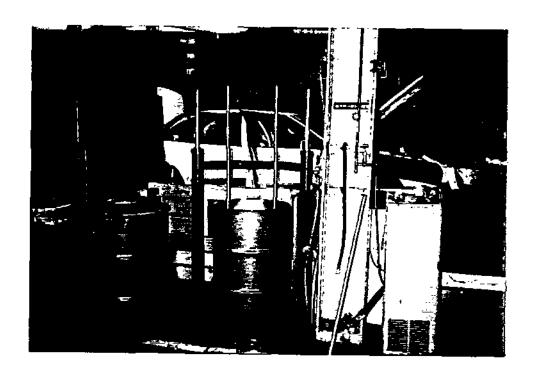
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Satellite Accumulation Area.

Location:

Date:

12/11/91

Time:

1345

Photographer:

S. Doolan

File:

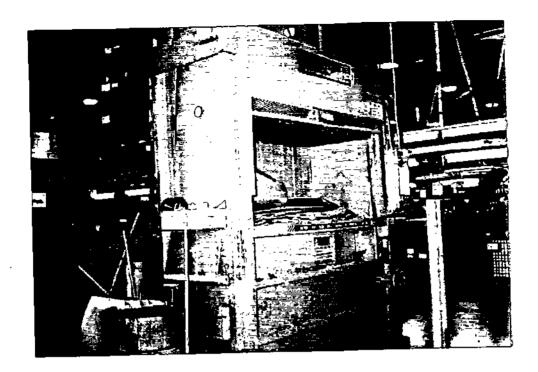
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Cardboard compactor.

Location:

Near Trash Dock.

Date:

12/11/91

Time:

1350

Photographer:

S. Doolan

File:

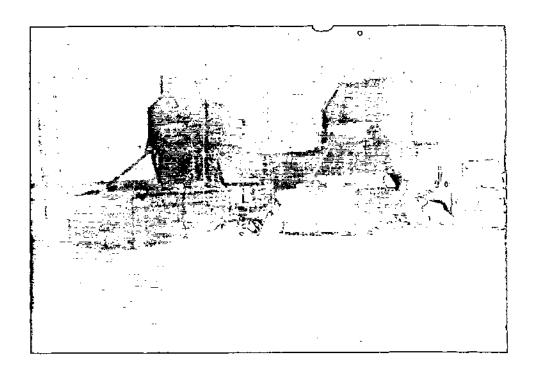
N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Trash Dock.

Location:

Date:

12/11/91

Time: 🕟

1355

Photographer:

S. Doolan

File:

N/A

Film:

ASA: 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Pipe which leaked gasoline.

Location:

Date:

12/11/91

Time:

1405

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Home closest to east side of site.

Location:

Across Route A-southeast of Retention Ponds.

Date:

12/11/91

Time:

1507

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper

Direction of Photograph: Southeast



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Nearest buildings southeast of site.

Location:

West side of Route A, at intersection with Pitman Avenue.

Date:

12/11/91

Time:

1507

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



SITE NAME: General Motors Wentzville Assembly Center

Subject:

Homes on Pitman Avenue south of site.

Location:

Date:

12/11/91

Time:

1510

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper



PHOTOGRAPH NO. 50

SITE NAME: General Motors Wentzville Assembly Center

Subject:

Homes on Pitman Avenue south of site.

Location:

Date:

12/11/91

Time:

1510

Photographer:

S. Doolan

File:

N/A

Film:

ASA 200

Witness:

D. Cooper

Direction of Photograph: West

APPENDIX D FACILITY SAFETY KLEEN PARTS WASHERS LOG

12/10/91 GM/WZ / SAFETY KLEEN PARTS WASHER LOG DATE: ------VOL S/K MODEL SOLVENT LOCATION COL/# GL/IN GL/OUT SERIAL PO # ======= ======= ===== ====**=** 22222 ====== ====== 1 M-16 174-23174 W2S-91878 NAPHTHA 9.1 SEAL PUMP/RM GG-43 9.1 7 2 GM - 20520-82221 WZS-85178 NAPHTHA 20 PAINT/MAINT GG - 3917.5 13 3 GM-40 40 DD-40 540-48172 WZS-85035 NAPHTHA TRACTOR/REP 0 27 4 M - 4427 21 440-05852 WZS-85035 NAPHTHA TRACTOR/REP BB-40 5 GM - 20520-88076 20 ₩-37 WZS-84959 NAPHTHA TOOLING 0 6 GM - 60560-68018 WZS-84959 NAPHTHA 60 TOOLING Y-37 0 7 GM-20 * Y-38 17.5 520-70692 WZS-93108 NAPHTHA 20 TOOLING 13 8 M - 3017.5 DD-33 17.5 13 303-88832 WZS-84956 NAPHTHA BODY/MAINT 9.1 7 9 M-16 171-06852 EE-24 9.1 WZS-84956 NAPHTHA BODY/MAINT 7 10 171-68096 9.1 BODY/MAINT Y-17 M-16 WZS-84957 NAPHTHA 9.1 11 M - 30₩**-**14 301-26307 17.5 BODY/MAINT 17.5 13 WZS-84957 NAPHTHA 12 **W**−21 9.1 7 M-16170-44933 NAPHTHA 9.1 BODY/MAINT WZS-84956 13 M - 3017.5 W-21 17.5 13 303-94428 WZS-84956 NAPHTHA BODY/MAINT 9.1 14 M-16 171-47254 WZS-84957 **NAPHTHA** 9.1 BODY/MAINT V-21 7 Y-23 7 15 M - 16170-78023 NAPHTHA 9.1 BODY/MAINT 9.1 WZS-84956 17.5 M - 3117.5 13 16 M-30 303-94402 WZS-84956 NAPHTHA TRIM/ W/S GM-20 17 520-78604 20 J - 5017.5 13 WZS-84955 NAPHTHA CHASSIS/MAINT 18 M - 30300-12786 17.5 B-56 17.5 13 WZS-84955 **NAPHTHA** CHASSIS/MEZZ* 19 GM-40 540-51480 27 HI-TECH BB-66 0 WZS-84958 NAPHTHA 17.5 V-40 20 GM - 20520-88300 WZS-85178 NAPHTHA ACCUM/RM ROOF 0 21 AA-37 17.513 GM-20 * 520-70695WZS-93109 NAPHTHA 17.5 MAINT/PUMP 22 GM-20 * 520-70696 WZS-93109 NAPHTHA 17.5 MAINT/PUMP AA-37 17.5 13 23 GM-20 * 520-70697 WZS-93108 NAPHTHA 17.5 MAINT/PUMP AA-3717.5 13 24 AA-37 13 GM-20 * 520-70698WZS-93108 NAPHTHA 17.5 MAINT/PUMP 17.525 32 AA - 3732 GM-32 * WZS-93109 LAQ/THNR MAINT/PUMP 24 26 GM-40 * 540-70700 28 AA-37 WZS-93109 NAPHTHA MAINT/PUMP 28 21 7 27 10 GM-10 * 510-70693WZS-93107 NAPHTHA POWERHOUSE 4F 9.1 28 27 4F 27 M-44***** 440-05704 NAPHTHA **POWERHOUSE** 21 WZS-93107 29 7 GM-10 * 510-70694 WZS-93107 NAPHTHA 10 **POWERHOUSE** P/HSE 9.1 30 110-12200 IC-5 5.0 PAINT REP/MX 5 4 WZS-85283 I/CLEAN G/H-6831 IC-5 110-27126 5.0 PAINT REP/MX 5 WZS-85283 I/CLEAN G/H~68 4 32 IC-5 110-53388 PAINT REP/MX G/H-68 5 WZS-85283 5.0 4 I/CLEAN ===== ======== ======== ============ ======= ===== _____ 279 NAPTHA TOTAL/NET 365 86 4 580 LBS I/CLEAN TOTAL/NET 3ž LAQ/THNR TOTAL/NET ======== === ===== ======= ======== =========== ====== =====

APPENDIX E FACILITY MASTER WASTESTREAM LOG

KEY	TRANS/ MO I.D.	NASTESTREAM NAME		NZ MASTER WASTESTREAM LO D 0 T Proper Name	6 DOT Class	UN/NA No	EPA No	GUIDE No.
AREA DISPOSAL	AREA N/A	NON-HAZARDOUS NASTESTREAMS (Bulk Paint Sludge/ BOXES)	000	NO n h az - n/a	N/A	N/A	N/A	31
WEST COUNTY	BEELMAN N/A	HON-HAZARDOUS MASTESTREAMS Wastewater Treat Sludge	900	NON-HAZ - N/A	N/A	N/A	N/A	31
	¦ 	Powerhouse Fly-Ash	000	HON-HAZ - N/A	N/A	N/A	N/A	31
MICHIGAN RECOVERY (HRS)	DRURY BROS H-1336	Bulk Purge Thinner	901	FLANMABLE LIQUID NOS	FLANNABLE LIQUID	NA-1993 FLAMM/LIQ	F003 SOLVENTS XYLENE	27
PEORIA DISPOSAL (PDC)	PEORIA H-1191	ELPO Filters & Residue	005	HAZ/ NASTE SOLID NOS	POISON "B"	NA-9169 Haz/Wste	DOCS LEAD	31
		WHITE Adhesive & Seal	000	NON-HAZ - N/A	N/A	N/A	N/A	31
		SEALERS & SLUDGES	000	NON-HAZ - N/A	N/A	N/A	N/A	31
CHEM WASTE MISHT (CHM)	CIM H-1610	Paint Filters /Solvent Rags	008	FLAMMABLE SOLID NOS	FLAMMABLE SOLID	UN-1325	F001/F003 Flamm/ Solvents	32
		Fuel Mix Residue	011	FLAMMABLE SOLID MOS	FLAMMABLE SOLID	UH-1325) R 1	32
	i 	BLACK Adhesive/Seal	014	FLAMMABLE SOLID NOS	FLAMMABLE SOLID	UN-1325		32
		Solvent Bearing Rags	019	FLAMMABLE SOLID NOS	FLAMMABLE SOLID	UN-1325	 	32
SAFETY-KLEEN (CLARKSVILLE MO)	SCHIBER H-1427	Alternate Fuel Mix (to Cement Kiln)	010	FLANMABLE LIQUID MOS	FLAMMABLE LIQUID	NA-1263 Paint/ Mat'ls	F003 Flamm/ Xylene	27
SAFETY-XLEEN (St. Charles)	S/Kleen H-1273	Waste Petroleum Naphtha	017	COMBUSTIBLE LIQUID	COMBUSTIBLE LIQ	UN-1255 NAPHTHA	DOO1 FLAMM	27
		Cleaning Liquid Compound	017	CORROSIVE MATERIAL	CORROSIVE	NA-1760 CORROSIVE	DOO7/18 CHROHIUN/ BENZENE	60
FETRO-CHEM PROCESS	PETROCHEH H-1759	Paint Line Cleaner (Methylene Chloride Solv) (Chlorinated/Combustible)	N/A	ORM - A Other Regulated Mat'l	ORM - A	UN-1593	F002 HETH/ CHLOR	74

APPENDIX F INTERIM CLOSURE PLAN





June 16, 1988

Dan Tschirgi
Permits Section
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

Dear Mr. Tschirgi:

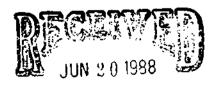
Please be advised that the BOC Group, General Motors' Wentzville Center, (Missouri Generator Number 03313, USEPA ID No. MOT-300010261) has elected to withdraw our Interim Part A Treatment, Storage, and Disposal Facility Permit, and hereby notifies you and your department of our intent to revise our existing Closure Plan and undergo Iterim Status Closure and any other required procedures needed to remain active as a permitted Hazardous Waste Generator only.

Please contact me at your earliest convenience at (314) 327-2270 so that we might implement whatever steps are needed to affect this change in status for the Wentzville Center as quickly and as smoothly as possible.

I look forward to working with you and your department in this transition.

Sincerely

Wm Haves Engineering Tech



Waste Management Program



Wentzville (Assembly conten

August 8, 1988

Dan Tschirgi
Permits Section
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

Dear Mr. Tschirgi:

Please find enclosed the B-O-C Group, General Motors' Wentzville Center revised (8-8-88), Interim Closure Plan. Per our letter of June 16, 1988, the Wentzville Center wishes to submit this revised Interim Closure Plan for Missouri Department of Natural Resources (MDNR) approval and for MDNR authorization for implementation.

Our plan calls for the steps described to be complete and ready for MDNR inspection and approval by September 30, 1988.

Please find attached a plan drawing details $\beta \mu$ described in the plan.

Should you have further questions or needs, (314) 327-2270, at your earliest convenience as and approval are essential to affecting this smooth and timely manner.

I look forward to working with you and your transition.

P 401 116 685

NO INSURANCE COVERAGE PROVICED— NOT FOR MYTERMATIONAL MAIL

(See Reverse.

DAN TSCHIRGI

P.O. BOX 176

JEFFERSON CITY, MO. 65

S

Date Issued: 03-21-84 Page 1 of 5 Last Revised: 08-08-88

A. INTRODUCTION

Under United States Environmental Protection Agency Regulations, 40 CFR Part 265, Subpart G, Section 265.110 through Section 265.120, any facility which stores, treats, or disposes of hazardous wastes must maintain a Closure Plan on file. In compliance with the sited regulations, this document constitutes the RCRA Closure Plan, with attendant Closure Costs, for the B-O-C Group, General Motors Wentzville Center, 1500 East Route A, Wentzville Missouri; (ZIP) 63385, U.S.E.P.A. Identification Number MOT 300010261.

The Interim Closure of the B-O-C Wentzville Center, as outlined in this document, is intended to formally close operations as a Treatment, Storage, and Disposal Facility by September 6, 1988, and continue operations on September 7, 1988, and henceforth, as a Generator of hazardous waste only.

B. SCHEDULE of EVENTS

The GM Wentzville Center shall begin implementation of the Interim Closure Plan described herein by September 1, 1988.

The Interim Closure steps of the B-O-C Wentzville Center detailed herein shall be complete and ready for inspection by September 30, 1988.

It is recognized that this Interim Closure Plan, including the sequence of planned events, is subject to, and can be enacted only subsequent to the approval of the Missouri Department of Natural Resources, acting as a U.S.E.P.A. authorized state agency per CFR 40 Section 265.112(c).

ITEM:

- 1 . The Drum Control Pad will be emptied of all drums on hand.
- 2 The Drum Control Pad will be cleaned, steam/water blasted, sandblasted, as needed.
- The Drum Control Pad sump will be emptied to our Wastewater Treatment Plant. The sump will be cleaned and accumulated solids will be drummed for disposal.

Date Issued: 03-21-84 Last Revised: 08-08-88 Page 2 of 5

- 4 The Drum Control Pad surface will be re-finished and striped for operations as a Generator.
- A 10,000 Gallon capacity steel storage tank will be installed on the drum pad to facilitate drum process operations within the 90 day time limit for Generators.
- The new tank facility on the Drum Control Pad, and our existing tank facility at our Tank Farm will be inspected and certified as structurally sound, per CFR Section 264, by a registered, independent professional engineer.
- 7 Steps one (1) through six (6) of the Interim Closure Plan shall be complete by September 30, 1988.
- 8 Missouri Department of Natural Resources inspection and approval of the B-O-C Group, General Motors Wentzville Center for continued and ongoing operation as a Hazardous Waste Generator.

C. AGENCY AUTHORIZATION and APPROVAL

The B-O-C Wentzville Center welcomes and invites Missouri Department of Natural Resources input, review, consultation, recommendations, and on-site inspections at the the convenience and discretion of the Department.

Date Issued: 03-21-84

Page 3 of 5

Last Revised: 08-08-88

D. COST ESTIMATES for CLOSURE

List of estimated costs associated with the Interim Closure Plan .

ITEM	Capital Cost	Disposal Cost	Cleanup Cost
Drum Pad	30000		10000
Drums		48000	
Purge Tank	1000		
Sub-Totals	\$31,000	\$48,000	\$10,000
	=========	=========	=========

TOTAL COSTS

\$89,000

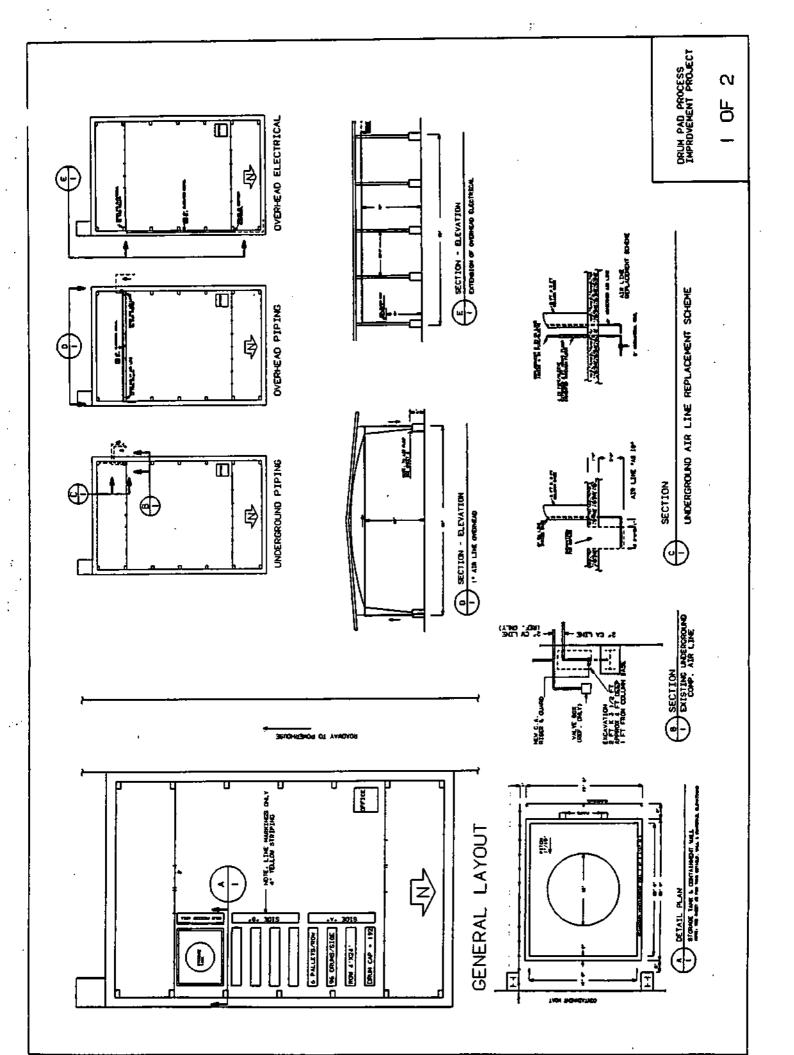
Date Issued: 03-21-84 Last Revised: 08-08-88 Page 4 of 5

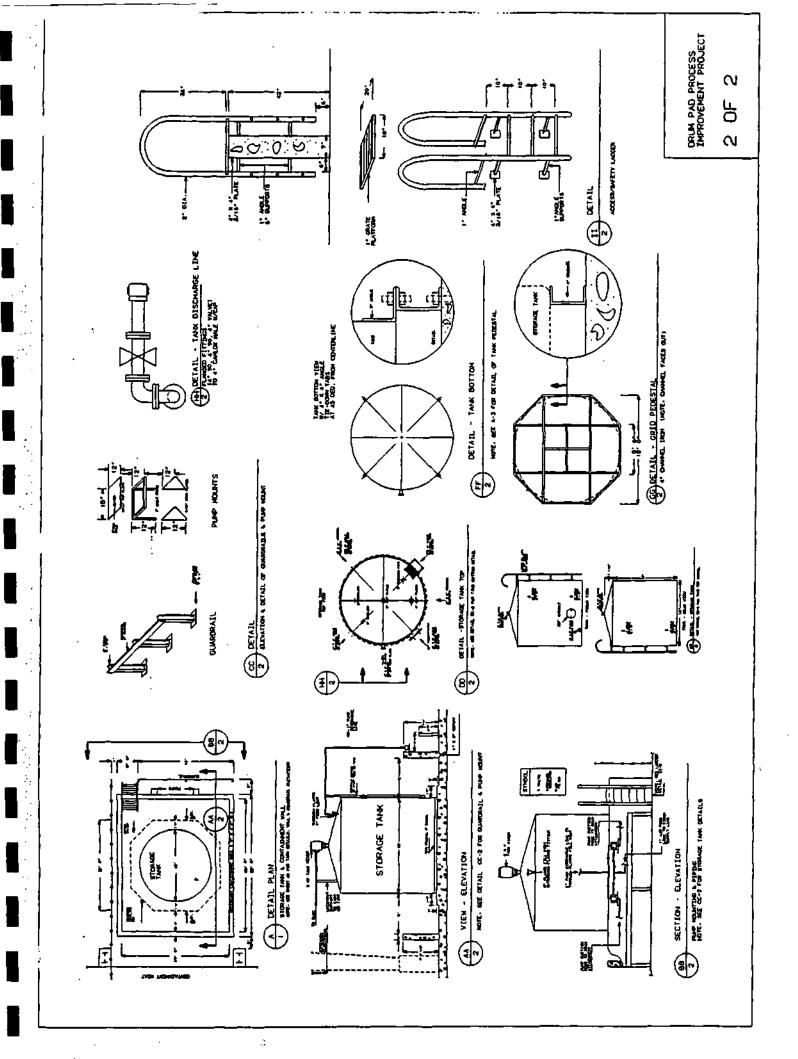
E. ESTIMATE of MAXIMUM INVENTORY of WASTE MATERIALS ON HAND in PRIMARY ACCUMULATION AREAS after 9-6-88

001	Purge Thinner	20000	Gals.
010	Alternate Fuel Mix	10000	Gals.
018	RRA-139 (oily water mix)	500	Gals.
	TOTAL	30500	Gals.
IMMED WASTES			
003	Cleaning Resin	6	Drums
005	ELPO Filter/Residue	25	Drums
008	Paint Filters/Rags	25	Drums
010	Alternate Fuel Mix	25	Drums
011	Fuel Mix Still Bottoms	50	Drums
013	Methylene Bis Diisocyanate	0	Drums
014	Flammable (Black) Sealers	25	Drums
015	Toxic (White) Sealers	25	Drums
019	Solvent Rags	25	Drums

TOTAL

200 Drums





APPENDIX G NPDES PERMIT

JOHN ASSEROFF

BRICK A. BRUNNER

Director



Division of Energy

Division of Environmental Quality

Division of Geology and Land Survey

Division of Management services

Division of Parks, Recreation,

and Historic Preservation

STATE OF MISSOURI DEPARTMENT OF NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102

File No. 3.500 St. Charles County NPDES Permit No. MO-0100153 General Motors Corporation, GM Assembly Division - Wentzville Plant

December 2, 1988

General Motors Corporation, GM Assembly Division 30009 Van Dyke Avenue Warren, Michigan 48090

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing your National Pollutant Discharge Elimination System (NPDES) Permit to Discharge from your above referenced facility.

Monitoring reports required by the special conditions must be submitted on a periodic basis. Copies of the necessary report forms are enclosed.

This NPDES Permit is both your Federal discharge permit and your new State operating permit and replaces all previous State operating permits for this facility. In all future correspondence regarding this facility, please refer to your NPDES Permit number.

If you have any questions concerning this permit, please do not hesitate to call this office or our Regional Office at St. Louis Regional Office, 8460 Watson Road, St. Louis, Missouri 63119, phone: (314) 849-1313.

Sincerely,

WATER POLLUTION CONTROL PROGRAM

Robert H. Hentges Chief of Permit Section

RHH: 1sm

Enclosure

cc: EPA - Billing Branch
General Motors Corporation, Wentzville, MO

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



AUTHORIZATION TO DISCHARGE

UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the Federal Water Pollution Control Act, Public Law 92-500, 92nd Congress, (hereinafter, the Act) as amended, and the Missouri Clean Water Law, (Chapter 644 R.S. Mo. Cum. Supp. 1986, hereinafter, the Law),

Permit No. HO-0100153

Applicant No.

MO-0100153

Owner General Motors Corporation, GM Assembly Division

Owner's Address:

30009 Van Dyke Avenue, Warren, Michigan 48090

Facility Name:

General Motors Corporation, GM Assembly Division - Wentzville Plant

Facility Address:

1500 East Route A. Wentzville, Missouri 63385

Legal Description: NE 1/4, SE 1/4, Sec. 20, T47N, R2E, St. Charles County

Receiving Stream & Basin:

Unnamed tributary to Lake St. Louis

(07110009-09-01) (Peruque-Dardenne Creeks Basin)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 - Two storm water retention basins to receive storm water runoff and once-through non-contact cooling water (410,000 gallons per day maximum). Total storage of these basins without discharge is 2.38 million gallons. Additional storage to 29 million gallons is available for flood control purposes.

Outfall #001A - Consists of the discharge from the first retention basin filled.

Outfall #001B - Consists of the discharge from the second retention basin filled.

This permit only authorizes wastewater discharges under the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

December 2, 1988

Effective Date

Frederick A. Brunner, Ph.D.

Director, Department of Natural Resources

December 1, 1993

Permit Administrator for Missouri Clean Water Commission

Expiration Date

MO 780-0041 (5-87)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

PAGE NUMBER 2 OF 3
PERMIT NUMBER NO-0100153

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final rent limitations shall become effective upon issuance and remain in

ct until expiration of the permit. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:

OUTFALL NUMBER		FINAL E	FFLUENT LIMITA	TIONS	MONITORING REQUIR	EMENTS
AND EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
outfall #001						
Flow-m³/Day	MGD	*		•	once/day when 24	hr. tota
Precipitation	inches	**		**	**	
Outfall #001A						
Flow-m³/Day	MGD	*		*	once/day when 24	hr. tot
Non-Filterable Resi Total Suspended So		80		60	once/month when discharge occurs	grab
Dil and Grease	mg/l	20	·	15	once/month when discharge occurs	grab
oH - Units	รข	***		***	once/month when discharge occurs	grab
Chemical Oxygen Dem	and mg/l	*.		*	once/month when discharge occurs	grab
	n mg/l	*	•	*	once/month when discharge occurs	grab
Sulfates	mg/l	*			once/month when discharge occurs	grab
Outfall #001B						
Flow-m³/Day	MGD	*		*	once/day when 24	hr. tot
Non-Filterable Resident Total Suspended So		80		60	once/month when discharge occurs	grab
Oil and Grease	mg/l	20		15	once/month when discharge occurs	grab
oH - Units	SU	***		***	once/month when discharge occurs	grab
* Monitoring requ	rement on	.y.				
** All rainfall ev	ents shall	be reported	on the disc	harge monite	ring report.	•
** pH is measured of 6.0-9.0.	in pH unit	and is not	to be avera	ged. The p	is limited to the	e range
MONITORING REPORTS SHA	LL BE SUBMITT		arterly	; THE FIRST REPO		
E SHALL BE NO DISCH	ARGE OF FLOAT	ING SOLIDS OR V	ISIBLE FOAM IN	OTHER THAN TRA	ICE AMOUNTS.	
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IN ADDITION TO SPECIFIED			IIS PERMIT IS SU	FA 3HT OT TOSUS	TACHED PART I ND HEREBY INCORPORATE	A S TUNIO
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SPECIAL CONDITIONS

- This permit may be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2) (C), and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (b) Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

This permit authorizes the continued use of existing or new storm sewers to convey uncontaminated storm runoff. Such uncontaminated outfalls do not require monitoring or limitations.

APPENDIX H RCRA PART A APPLICATION

CONTINUED FROM THE FRONT					
VII. SIC CODES (4-digit, in order of priority)		,			
A. FIRST		<u> </u>		B TOND	
7 3 7 1 1 ASSEMBLING COMPLETE AUT	OMOBILES	7	(specify)	•	
C. THIRD		13 19 -	12	D. FOURTH	
c /specify)	<u> </u>	127 77	(specify)		
14 19		7	. 		
VIII. OPERATOR INFORMATION					•
	A. NAME		·		B. is the name listed in item VIII-A elso the
aGMC GMAD WENTZVILL	F P1 A	NT	1 1 7 4 1		owner?
8 GMC GMAD WENTZVILL	. <u> </u>)1 1 	<u> </u>	, , , , , , , , , , , , , , , , , , , 	YES D NO
C. STATUS OF OPERATOR (Enter the appropriate let	ter into the answe	r box; if "Othe	r", specify.)	D. PHONE	area code & no.)
F = FEDERAL M = PUBLIC (other than federal or s S = STATE 0 = OTHER (specify)		pecify)		A 3 1 3 4	9 2 7 7 9 0
P = PRIVATE		- 		13 10 10 10	11 11 11
8 0 0 STEPHENSON HIGH	^	1 1 1 1	 		
18.			75		
F. CITY OR TOWN		G.STA	TE H. ZIP CODE		too Indian Inda2
BTROY		M I	148084	Is the facility located YES	XX NO
19 14	<u></u>	** ** **	1 47 - 1	- S2 123	22.110
X. EXISTING ENVIRONMENTAL PERMITS	1				
A. NPOES (Discharges to Surface Water) D. P.	so (Air Emissions	from Proposed	Sources)		
9 N A 9 P		l'A			
B. UIC (Underground Injection of Fluids)		R (specify)	10		
CITIAL CITI		1 1 1 7 1	(spec	o(f)y)	·
9 9	,		10		
C. RCRA (Hazardous Wastes)		R (specify)			
9 R 9 9	┧ ' ' ' '	, , , , ,	(spec	cify)	
18 16 17 16 XI, MAP	2 18		30		
Attach to this application a topographic map of the a the outline of the facility, the location of each of its treatment, storage, or disposal facilities, and each we water bodies in the map area. See instructions for pre-	s existing and p ell where it inje	roposed intak ets fluids und	e and discharge	structures, each of i	ts hazardous waste
XII. NATURE OF BUSINESS (provide a brief description)					
THE NATURE OF BUSINESS IS THE F	FINAL ASSEM	BLY OF CO	MPIFTF PASS	SENGER AUTOMOR	ILES. SPOT
1					
AND FUSION WELDING PROCESSES AF	RE USED TO	W22FWRFF	MOLOWORITE	RODIEZ WAD WO	IOMOTIVE
METAL SURFACE COATING PROCESSES	S ARE UTILI	ZED FOR P	RIME AND TO	OP COAT PAINTI	NG. FINAL
AUTOMOBILE ASSEMBLY INVOLVES NU	JMEROUS COM	PONENTS H	ELD TOGETHE	ER USING MECHA	NICAL
FASTENERS.	·				
XIII. CERTIFICATION (see instructions)	45.5				
I certify under penalty of law that I have personally attachments and that, based on my inquiry of thos application, I believe that the information is true, ac false information, including the possibility of fine and	se persons imm curate and com	ediately respo	onsible for obtain	ining the informatio	n contained in the
C. NAME & OFFICIAL TITLE (type or print)	B. SIGNAT	ر کرون		Č. 0	DATE SIGNED
P. J. Coletta - GM Assembly Division		AN .	Pott	- 1	1/17/80
Vice-President and General Manager		10/00	- William		
COMMENTS FOR OFFICIAL USE ONLY			. , . , . , . ,		
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'A Form 3510-1 (6-80)

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III. PROCESSES (continued)

SPACE FOR ADDITIONA" OCESS CODES OR FOR DESCRIBING OTHER PROCESSES (code "TOI"). FOI INCLUDE DESIGN CAPA.

CH PROCESS ENTERED HERE

TO4 - SLUDGE DEWATERING PERFORMED BY A FILTER PRESS.

IV	'. DESCRIPTION	ΩE	T# 4 7	4 D D O ATTC	WARTER !
	· DESCRIPTION	UF	MAZ.	AKUGUN	WANIES

- EPA HAZARDOUS WASTE NUMBER Enter the four-digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four-digit number/s/ from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.
- 3. ESTIMATED ANNUAL QUANTITY For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste/s/ that will be handled which possess that characteristic or contaminant.
- 2. UNIT OF MEASURE For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE CODE	METRIC UNIT OF MEASURE	CODE
POUNDSP	KILOGRAMS	K
rons , ,	METRIC TONS,	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed hazardous weste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code/s/ from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes, If more are needed: (1) Enter the first three as described above; (2) Enter "900" in the extreme right box of item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

- 1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns 8,C, and 0 by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
- In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter
 "included with above" and make no other entries on that line.
- 3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV (shown in line numbers X-1, X-2, X-3, and X-4 below) — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

		·	EΡ	•		C. UNIT											_				D,	PROC	ESSES
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X-3	<u>1</u>	0	0	1	100	P	7	_	0	3	I)	8	0		1	_	T	Ŧ	Τ			
X-4	D	0	0	2.				1				1				,	1		1	1			included with above

PA Form 3510-3 (6-80)

PAGE 2 OF 5

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<u>IV. !</u>	$\overline{}$	SCI A. 1			N OF HAZARDOUS WASTE	C.1	TINU	T	_				D. PROCESSES
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IV. DESCRIPTION OF E ARDOUS WASTES (co.			
E. USE THIS SPACE TO LIST ADDITIONAL PRO	CESS CODES FROM ITEM D(I) ON PAGE 3		
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EPA I.D. NO. (enter from page 1)			
- T/AC			
F			
V. FACILITY DRAWING			4
All existing facilities must include in the space provided on	page 5 a scale drawing of the facility (see instruction	s for more detail).	
VI. PHOTOGRAPHS	1.00		
All existing facilities must include photographs (aeri			
treatment and disposal areas; and sites of future stor	rage, treatment or disposal areas (see instruction	ons for more detail).	
VII. FACILITY GEOGRAPHIC LOCATION	Carried Control of the Control of th	The second secon	زاره
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_PA Form 3510-3 (6-80)



May 21, 1985

M. 73000 1026 Inbly Div.

G. M. Assembly Div.

Wentzville

I Assembly center

OK Algutta file

Ms. Betty Harris USEPA-Region VII 726 Minnesota Kansas City, KS 66101

Dear Ms. Harris:

Please review our EPA Form 3510-1 (6-80) to include the following corrected information:

Section III. Name of Facility

GMC BOC Group Wentzville Assembly Center

Section IV. Facility Contact

(A) R G Howden

(B) 314-327-2260

Section V. Facility Mailing Address

- (A) 1500 East Route A 0 1C
- (B) Wentzville
- (C) MO
- (D) 63385

Section VI. Facility Location

(A) 1500 East Route A

SECTION VIII. Operator Information

- (A) GMC BOC Wentzville Assembly Center
- (D) 314-327-2260
- (E) 1500 East Route A
- (F) Wentzville
- (G) MO

(H) 63385

RECEIVED

MAY 2 & 1985

PRMT SECTION

Bulck-Oldsmobile-Cadillac Group

Page 2

Also please revise our EPA Form 3510-3 (6-80) to include the following corrected information:

Line number (1), delete 1A, 1B, 1C, 1D(1)

Line number (2), delete 1A, 2B, 2C, 2D(1)

Line number (4), delete 4A, 4B, 4C, 4D(1)

GM Wentzville is a new facility and was permitted prior to actual construction of the plant. These waste entries were the result of projected estimates based on other General Motors plant waste generation. Our current processes generate no F007, F008, or F009 wastes and we expect no F007, F008, or F009 wastes to be generated by the GM Wentzville Assembly Center in the future.

Sincerely,

R. G. Howden

Director of Technical Services

(Plant Engineer)

/st



KECEIVED

DEC 18 1986

STPG SECTION



December 15, 1986

Ms. Betty Harris USBPA Region VII 726 Minnesota St

Kansas City, KS 66101

Please revise our GM Wentzville, MOT-300010261, BPA Form 3510-3 (6-80) to include the following corrected information.

On page 1 of 5, Section C:

- * on Line 1, Column B, strike "90,000" and enter "62,200."
- * on Line 2, Column B, strike "2,420,000" and enter "20,000."
- * on Line 3, delete all entries in Columns A, B, and C.
- * on Line 5, delete all entries in Columns A, B, and C.

On page 2 of 5, Section III-C, delete "TO4 - Sludge dewatering performed by a filter press."

On page 3 of 5, Section IV:

- * on Line 7, delete all entries.
- * on Line 8, delete all entries.
- * on Line 9, delete all entries.
- * on Line 10, Column A enter "D008", Column B enter "15", Column C enter "T", and in Column D-1 enter "S01".
- * on Line 11, Column A enter "PO64", Column B enter "9", Column C enter "T", and in Column D-1 enter "SO1".

GM Wentzville Center is requesting these revisions in our permit because, (1) Wastewater Treatment Plant operations are excluded from RCRA Hazardous Waste regulation, (2) we can find no listing in CFR-40, Parts 190 to 399, (July 1984), for F017 and F018, (3) the recent USEPA ruling (SHW-FRL-3121-2) exempts our wastewater treatment plant sludge from the previous F006 listing, and (4) a review of our records revealed the need to register the D008 and P064 wastestreams that we generate.

Sincerely

R.G. Howden

Director of Technical Sevices

APPENDIX I VSI LOGBOOK

. -

diverted to the compile side before any reached the filling collected on the stee previously side Lead contaminated out Studge developed (all settled out) Decision was made in the pound thru the wown of the pound thru the wown of the lines (hose) trose. Lines he lines (hose) trose. Lines Top ter inches of sludges
were removed. All was
thaused on cost pile flod
where thoused June)
Tolume 1200 yd3 disposed
to Peoria, IL. The contractions
riphed up - not disposed as
riphed up - not disposed as were disassembled, drained to Homist changes - Air: went in studges). Hold conducted Pumping of pour fusued The service Dec 2000 10-11-91 pecause of Fond., All The rinse, 1sth - spread with phosphate. Spread on chromic opid (pits the metal), rinse, then to ELPO dip tonk - SODOO and - Preprimer - SODOO and - Preprimer - Pectralispositor, Operation.

Ectralispositor, contains prament. tody washer washes assembled acres before painting. First step - dip tank - 15000 rall - 1500 rall - 1500 rall - 1500 rall - 15000 rall - 15000 rall - 15000 rall - 15000 ra Truck arive your post trocer.

Driver pushed a rod thrul Jack driver opened value to spilled to ground, Hunt-shop people thoshed it down in one stormwoter retention (leaded) resin, Dr. Hunent The ELTO release: Frament delivered in teak trunks, delivered in teak trunks, Dad Shop - 4 "boxes" the storm drain. Bill Hayes plant The rund was isolated of immediately andylecs the Productive (or 84 that is tout Shap

Dero-Roop 12-11-91

No response to closure plan interine status has not been terminated by NDNR

Dayments rec'd- Se receipt

LISTS were blocked off and filed with sand. Oil stimmers from retention pand never worked. Nos disabled. Floating bookled with oil absorbant books. I were installed, ore currently used fant was in earther bern behveen ponds.

UST Tank of took farm was in snow to tank farm. Was connected to wasth.

Both tents were disabled before UST rules took effect. No Stimmer at touk Serm. Touk

No drum pad was ever installed at the stammings were are collected. Hooms are disposed

December 12-11-91 11 roll-off boxes. No of Stimmings from this orea Both tonks were assumed empty when Alled with sound, taken out of service, blooked?

Nothing has ever been landfilled here by Gall or Call
Gresoline Spill. Bill was from Pipe holes occurred from proponet electrolysis.

Tonk ferm Dipera 1240-2000ch, 40 property 2011 50 4 ft.

Out to serve fill station, aboveground in time stabilized bacefills corresive environment results. Line serves 4 pump areas one from Porne area.

This was one Porne area.

This was one Porne area.

when burned \ Asphalt release loss-no knowledge No powing hes been done since construction, except to replace opsoline Reper recycling - other caper Hy ash is landfilled off-site On one-time and basis was sold to city. burge thinner (for 572) Cool pile slab is asphalt Trackor repair area Hats Zecycled: consite - ail cendboard zeto-- 28 /2GS Discovered as 5000 open john dage
Discovered as 5000 open john dage
Ance Deer Discovered 5000
gal missing in Sept 1984
Gas fumes reported in release
Apphalt was degraded the confucted on antrients (N)

Located were injected in Spill or an 1st one injected in Spill or an 1st one or and in map. Currently over teny monitoring is being confucted on ~ 30 wells. Surface work: gas pad was surface due to executation of pipe. Some blocktop was removed and small area of contemnated soil ~ (e tollost boxes (30 vos) contominated aguiter is negligible. Granhalwater with a roxide and nutrients (N) bay Sound veplaced by an aboveground seetien immediately upon with holes. Spill occurred in breached whility trenches. The faulty section was Water movement in the to Peonia discovery,

To wonth 30-40000 and form of the whole of the when cleaned 32 years of the sent to with the sent to with shades from occ. 10000 are treated as now here. Deurs P. Casp. 12-11-91
Paint studies or accumulated
at peint studies or iding and
also at scallite boothes. (Inc 3) Sidestream Altration 1000 satining Dent water josep in flow 800,000 pet states frit one pit in operation cita time put back to booths through 40-in line Solids flow into wir they are stimmed to filter at 1000 pailmin in 7th solids are floated (not settled out. Phob-ELPO filter Cors behind here in final Mark Jan- work Courting when ECAD spill accounted man drains to when the stormwater retention Phosphare west over the wastestrom. Hart Sludge burking - woter is circulated through out to pent booth of this system of the sylote west yellow pourch of the took in clumpsters, or thor North in Contained ever but not well contained (see photos) For wester, NSt Step is ELD. 12-11-G1 YOODY - Oracl R. L. of Wastestran 22 Now her FIFD tenk woste-mainly filters-not much sludge

Leve presser Each Satch is won. topal-jar test pH continually moviford. WITH each traduct fork is 800,000 gal Clarifiers— 375060 pap—2 One in use at a time. Studge from filter paers studge is collected in rollotte bases - all wwith study ends up here. The Bree joined party but tonk them inspection. Cost Pite Also input Hours of around to want here. Surfece drainage only to point in epol 1316 one tank lare - APG another Some degradation of convocte. glastfers to 180 dopears normal Condition to out periodically to rolloff box.

North out court court control reality. Coal stone ge pag is popully of sit spectal-list step-drag chain at bottom, arit is a collected in hoppers, to rollotens boxes - arit separator studge Sludges Altered of are permitted onto them. WHIP drimmed solvel. Sudge in rolloly bokes central slydge Anthrope about Constate.

Hoolground tent of chum.

Longe pad intended for us 010

Chungs will be empthed into)

Most of used for outthing.

MISALE has not opposed observed and is cleaned out os needed.

Simp is cleaned out os needed.

Cill hosn't been collected but would be in under over user. Vecent switch from solvent-Sahas fard. No bern Confy moct) of driveway to drum storace pad. I other openings have a grafe out the most, no bern. Drain at loading lock for diring to worth soil be are cleaned up with absorbant or vacuum by a 2 feet out from building in area of per released 27311 response Hom Cement weight outfall keeps Silbetion within NDIXS limits Hove on algae problem in the Simme of open subject is dispersed from a book in Simme algae, Vege to tion in Viewith over flow from one pour is goes Gocility is surrounded by Samford and 120 except L-12 houses across from one corner. Skimmed surface of wester wes to go to tent (457) at tent teem. UST I fled with sond in 85. Was empt and was note the through tent. Creek runs ground Pacility Stormwoder retention ponds-Inspection of Courty took. Corress H. to creek also. whereof

Dee Record 12-11-91
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cut by 6- proge thering.
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CDD-MORE.

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Rose of final coat were distrible.

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Area Disposal is a nonhoe landfull run by TDC.

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- phosphale served steps)
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- chroun. crise steps
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- over (Eme feathers)

Deed Poop 12-11-91

- over soud/weter mith

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1043 Photo 2 Cars intering ELPO tent.
1045 Photo 3 ELPO tent. filter
1045 Photo 3 ELPO tent. filter
1050 Photo 5 View of tout.

1202 12 20 Rolloft box for refuse only. 1200 # 26 Orang water Munier 1155 #25 View of area of Gruen UST now filled with sand 11-42-42- Filter pressed 124- Looting down on shake Anthener-only one classifier in 11 35 ± 20 - Gasiliers for warp.

121 - Jiller press sugle.

for warp - 40 de rolloge 132 That of Dainage leading to retention panels 1134 Photo 19 Water entering #31- Lamsly congete 1217 429-30 NPDES and land 1207 427 N retention Pand 428 S remission pand # 22 - Inner confuts. Ait Scholater ort. 1122 Photo 19 separator sludge collection. 1124 Photo 1. Concept Zundf area tor coal Pile. Rept Zundf area 1124 Photo le Coal pile, on concrete 1110 Thate 10 - Vacuum Sydge, of (Photo) 1112 Photo 11 - Fant form and stack 1053 Those 6 View of Fillers from phosphose wash tout book wash 1120 Phato 14- Oil stim/collection 1059 Photo) Central sludge system, 1100 Photo & View of 800,000 Spot Dits which collects woster 1115 Photo a-Drum storage pad 101 They of Reser Pit-not Daintsludge. operating.

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1247 # 43 Jash accumulascer area 13th 445 Spellite accumulation De-12 Coopy 12-11-91 # 42 Romp to overm storage #44 Miral saluage area. * He Candboard compactor #48 Pipe which holed paroline. Note expaiser 447 Jash deak 75 yd +41 See has wate tack in concrete diled area deparate from rest of drum stonggerea. 10-27 # 35 - Concrese area septaced 15th # He Noas surremoting drum #32-33: 2-4 ouplass #38 Drum storage pad - Lealed 1235 with usaser healdust - concretes. #40 Jump box to collections #34 Pipuria from which 1229 #30 Sometive paint studge Dee-Roop 12-11-91 touted, tourse, pumps accumulation area stoog area. ges relieve

APPENDIX J FOUR-MILE RADIUS WELL INFORMATION

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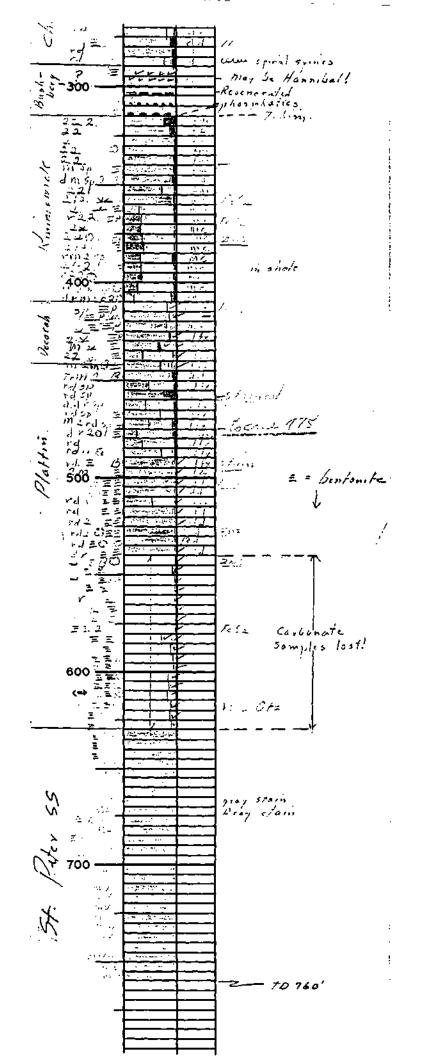
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7-12. STATE OF MISSOURI DIVISION OF GEOLOGICAL SURVEY AND WATER RESOURCES LOG NO. Wentzville Recreation Area. 27001 WELL NO. COUNTY FARM St. Chade & Pitman DRILLER Virgil DATE ELEVATOREY Wenteville PROD. LOGGED BY K. Anderson 5-71. REMARKS rd m m 3 =1.9 tid 2nie tal mase / v m mse / v m mse / v r m m tal mase / v m mse / v m mse / v mse / $F(\cdot)$ 1 grains rmm 5 Fost. S HOOP 100 m rmam raa r32 m -ry m rd Sm rdn 2.0 rm r2.0 rm r2. 2. . . 2 . . . 1 grain Schalia ? 1 91014 舒養 Chouter 1 = 11 B cem spiral spines May be Hannibal! -3**ò**o-Regenerald rphasphatics 30 2. 30 2. 30 2. 30 3. 10 3. 10 3. 10 3.

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MISSOURI BUREAU OF GEOLOGY & MINES, POLLA, MO STATE OF MISSOURI DIVISION OF MO SURVEY NO OWNER GEOLOGICAL SURVEY AND WATER RESOURCES FRANK HOFF OWNER LOG NO. WELL ME 26859 Kenneth McGill ST. CHARLES WELL NO. COUNTY **FARM** DRILLER G. L. CLAUSNER St Charles 25 DATE 1941 DRILLER St. Charles 1266. Tre. ELEVATION PRODUCTION DATE (Som: 29-4-69 Poppe: 1 Aug 69 ELEV FORTH PROD. SAMPLES STUDIED Grobskopf + 5 GAM. LOGGED-BY REMARKS 21/2 mi. SE of Wentzville, 14mi. E. of ostresy. REMARKS MSS who sub transl. Linestone, Bin-Tan, men to viene XIn. check content as shown. Becoming water the in lower portion of soct. الرمة ومؤب وهوار T.D. 180? 200 200 250 300 300 ____ 21 com. 350

MISSOUR! BUREAU OF GEOLOGY & MINES, FOLLA, MO MISSOUR! BUCEAU OF GEOLOGY & MINES, COLLA, MO. MO SURVEY NO OWNER MO SURVEY NO OWNER J. H. TOCHTROP WALTER M. LAUGHTY COUNTY WELL ME COUNTY FARM WELL MA Fee ST. Charles ST Charles DRILLER L.J. Kessler & Son DRILLER Clausner DATE 1941 ELEVATION ELEVATION (Roller Com) PRODUCTION. PRODUCTION 635 DeLaney 618' P.A. 36.P.M. SAMPLES STUDIED SAMPLES STUDIED Grobstopt Grobskopf 26 Ft of 6 14" esq. REMARKS REMARKS THE ME of U.S 61; 1/2 mi. N of Wenterith 5W4 60 yellow clay when; por cornerdal fors, Trus ross, 50 mp. fan in etst to the gray do do do do granza do recorded do sub transit gray world when de 212050 Insuff who secondal em kente men em wek som kentenk, som kente som kente som kente som kente som kente som kentenk, 10 T.D. 160 200 200 250 250 300 300 350 350

STATE OF MISSOURI

	DIVI	SION	OF	
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BAINES HOBBY SHOP

ON PIENE RD. OFF MEYER RD.

DRILLER VIRGIL PITMAN

2/14/67

PROD.

FARM 3 MI. N.W. OF WENTZUILLEWELL NO.

OWNER

DATE

ELEVACEURY Foristell

LOGGED BY 12/34/69

csa: 42 86/4"

WATER: 85"+; 255"+

6" HOLE @ BOTTOM.

MUD

MUD

MUCH OF THE DOLO., AND PROM 190'SPL., THRU 260'SPL., ARE GREEN.

ZnS Fest

27.0300.

LOG NO. 25,847

COUNTY

47N.

ST, CHARLES

REMARKS

BBPM

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MISSOUR! BUREAU OF GEOLOGY & MINES, ROLLA, MO. STATE OF MISSOURI DIVISION OF OWNER Arthur I. Schulz GEOLOGICAL SURVEY AND WATER RESOURCES A.J. SHALZ DISTILLERY LOG NO. OWNER FARM Trueman Jones 26.522 WELL NO. COUNTY FARM DRILLER St. Charl DATE DRILLER Virgil Pitman SAMPLES STUDIED PRODUCTION 47N DATE Flows Severalga 10-7-68 Sec. 16 ELEV Freezey Wentzville PROD. REMARKS Abandoned. LOGGED BY about 1.0 Mi, 3. of Went = ville-1 Scanned by Perugua creek. Wells 11-70 REMARKS GW MSS. 6/35, RM. No Samples 50 100 Burlington -(00 -Keokuk 150 Total Depth 174' 200 200 -237-770 250 300 300 -350

STATE OF MISSOURI DIVISION OF GEOLOGICAL SURVEY AND WATER RESOURCES OWNER LOG NO. Glen L. Mongle *9584*2 FARM Ini off I 10 So. Bricald WELL NO. COUNTY St. Charles Im Wef Westwille on Hepperna R DRILLER DATE Group 5 April 67 - Sole fee. 5 Sine 61 ELEV free mey PROD. 5 Gpm. LOGGED BY REMARKS -// of 62" egy abla @ 133 , 163 , 197' .50 m Cl المارين Drillers T.D. 215'

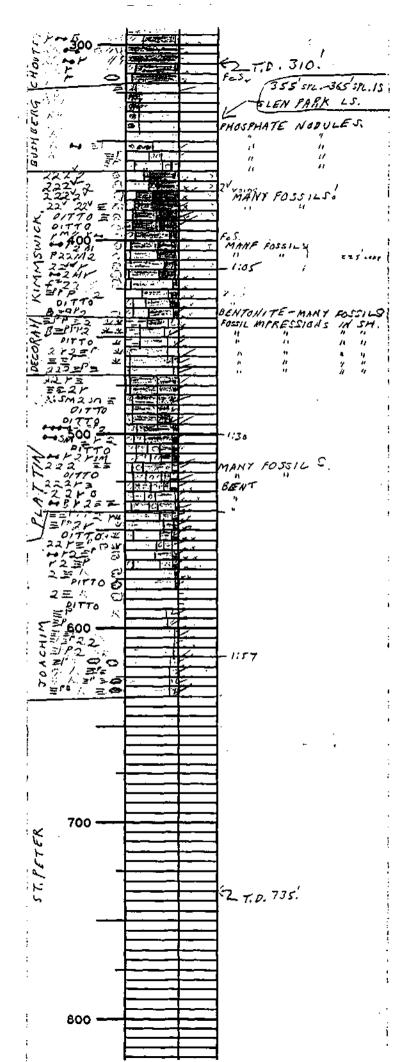
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STATE OF MISSOURI
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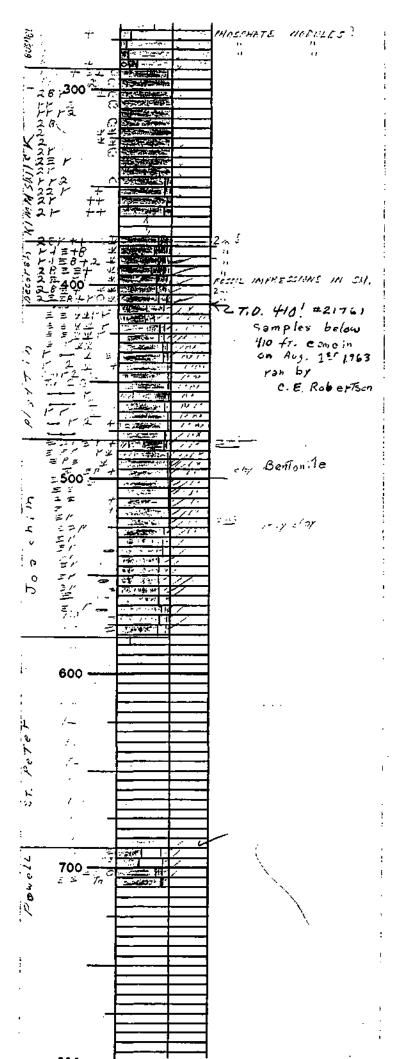
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STATE OF MISSOURI DIVISION OF GEOLOGICAL SURVEY AND WATER RECOURCES LOG NO. OWNER 24611 EL-MAU SUBDIVISION COUNTY FARM ABOUT 1 MI. W. OF WELL NO. WENTZYILLE. ST.CHARLES DRILLER PITMAN CLIFTON DATE ELEVS://recompROD. Elev range <u>600-680</u> Š LOGGED BY HM.GROVES SHEET NOVEMBER 1966 REMARKS WELL TONED, -PIS YIRTUALLY * MANY FOSSILS 2 - - MANY FOSSILS. H . H BRN.CLAY, OR MUD. IN MOST MADE OF PYRITE EZTID. 310. 355' 512-365 SPL.15: ELEN PARK LS.

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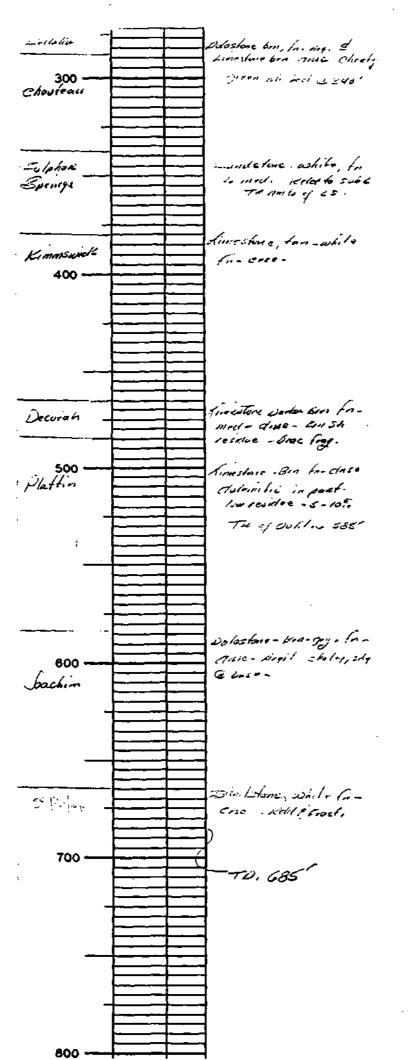


: T-15 STATE OF MISSOURI DIVISION OF SURVEY AND WATER RECOURCES GEOLOGICAL LOG NO. OWNER 21,652 PRAIRIE VIEW SUBDIVISION COUNTY **FARM** ST. CHARLES DRILLER Clifton PITMAN 47 12 IE. DATE 1963 Troj ELEVS://promapROD. 620 TM Š LOGGED BY MAY, 1963 REMARKS Water analysis on back マハじ 2mS THOSPHATE MODULES? 28 300 ==



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· DIVISION OF MISSOURI BUREAU OF GEOLOGY & MINES, ROLLA, MO. GEOLOGICAL SURVEY AND WATER RESOURCES MO SURVEY NO OWNER OWNER 6462 ANDY WORTHMAN Richard R. Johnson 17794 WELL 19 COUNTY FARM COUNTY FARM 3 m. W. of Wentsville WELL NO. I mi. W. of Josephville ST. CHARLES St. Charles R DRILLER Clausner 2 E DRILLER Weber Co. DATE 1940 ÏE ELEVATION 1 P.A 594 De Laney PRODUCTION DATE 9-20-58 ELEV. Tropp PROD. SAMPLES STUDIED 15 BASE Grobotopf LOGGED BY J. Wells REMARKS 1-13-54 6" hole Cho Hill 5.W.X. 120 yellow elay 50.7 445 im a rulf who do 1- 2 9 - 04 100-T.D.100 150 200 250 300 -7.0. 305" 350

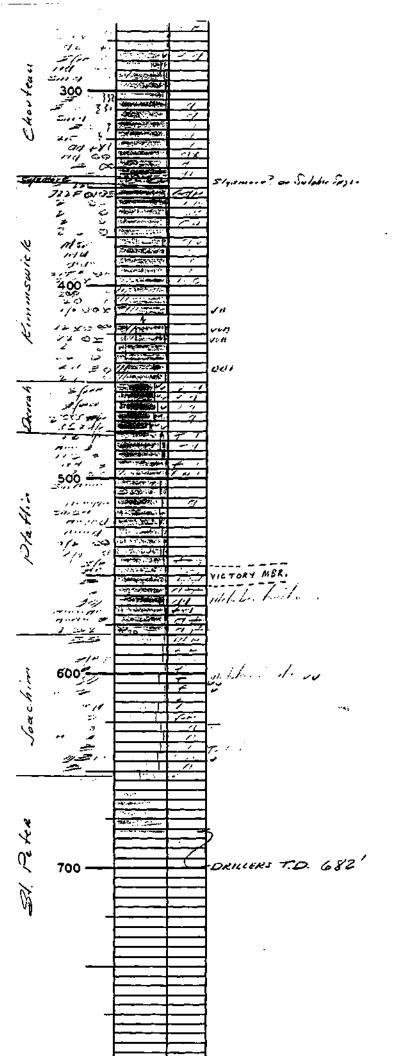
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STATE OF MISSOURI DIVISION OF

GEOLOGICAL SURVEY AND WATER RECOURCES LOG NO. OWNER r knuk 1 OCHTROP 27415 WELL NO. COUNTY FARM /mi Swu ST Char losephullle DRILLER DATE Bur 26-2-72 ELEV force) PROD. 628 75 GAM. LOGGED BY WZ16 INDEX SHEET Sept 173 REMARKS 43 of 6 4" esp Water @ 1801 + 660 x 1140024 100 7-1.5 12/11/22 Styamore? or Sulphie Sopie



STATE OF MISSOURI

DIVISION OF GEOLOGICAL SURVEY AND WATER RESOURCES OWNER LOG NO. Chus. Martin 26519 FARM I mi Wof Josephoille COUNTY WELL NO. 31. Charles ort Wilmes Rd. DRILLER Virgil Pitman DATE Comp. 31-14 67 Sph Be: OCT . 1968 ELEVERNO PROD. 56/ LOGGED BY WELLS REMARKS 21'0/64"esg. apple of 14/11 and d mmad ال دربر هي J day 2111-11 210111 23111 23111 4 gennd gela gela 51114 · 1000 201111 1000 a 4.4... dil 7 net" 200 2001 11 Sel. 7 2000 111 3/00 V + 78 15 (1.7) 11117 4 300 F. KE 77418 100 July 100 يتقو 50 (1 5) (4) 50 (4) 50 (4) 50 (4) ALC LINE

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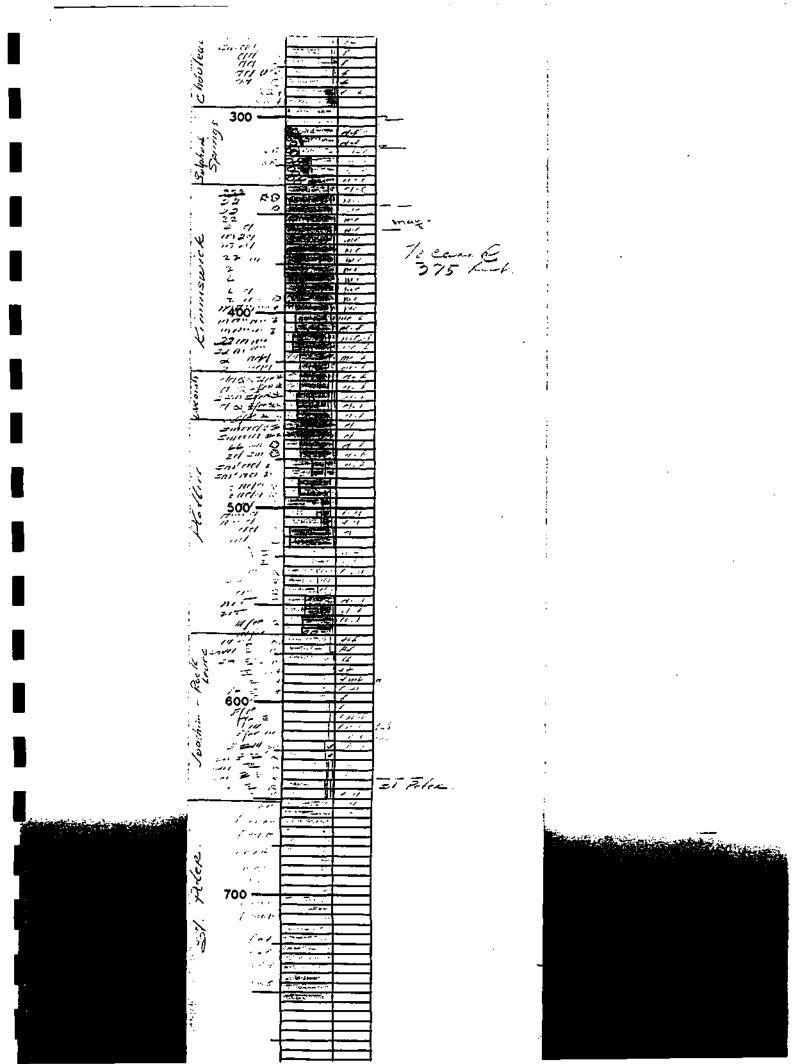
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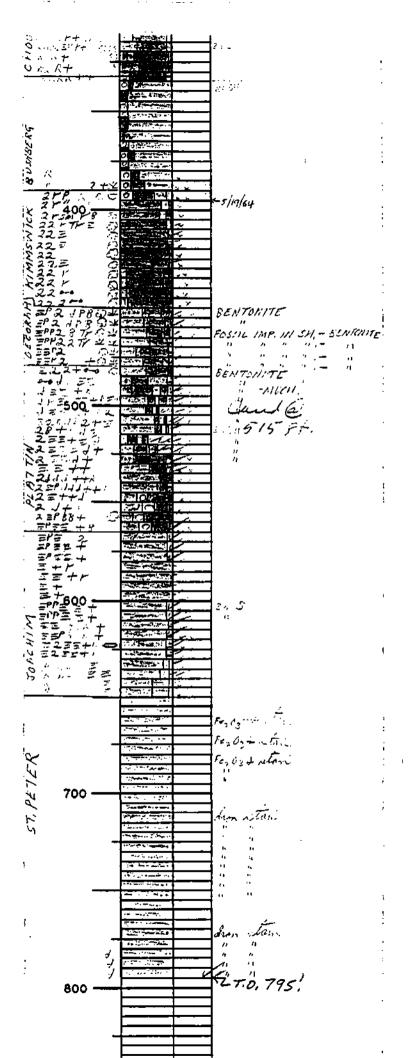
MISSOURI BUREAU OF GEOLOGY & MINES, BOLLA, MO STATE OF MISSOURI MO SURVEY HO OWNER DIVISION OF GEOLOGICAL SURVEY AND WATER RECOURCES 7910 PAUL BORNHUP OWNER O'Fallon Quarry LOG NO. COUNTY FARM WELL MA 24683 St.Charles COUNTY WELL NO. **FARM** DRILLER G.L. Clausner ST. CHARLES DATE DRILLER ST. CHARLES DRILLING CO. PRODUCTION. 47 N DATE 7/13/66 sec. 25 SAMPLES STUDIED ELEVS//rermy PROD. 9' JPM Grobskopt 540 FM REMARKS LOGGED BY AW. HEBRANA 7/17/67 SHEET REMARKS . + 6 F" CASING SWL 60 No RESIDUES de de lansligray-whi A SOLA SO Shrana 100 LT. O. 100 SH TAME! 150 T.D. 145' 200 200 250 300 300 -350

STATE OF MISSOURI						
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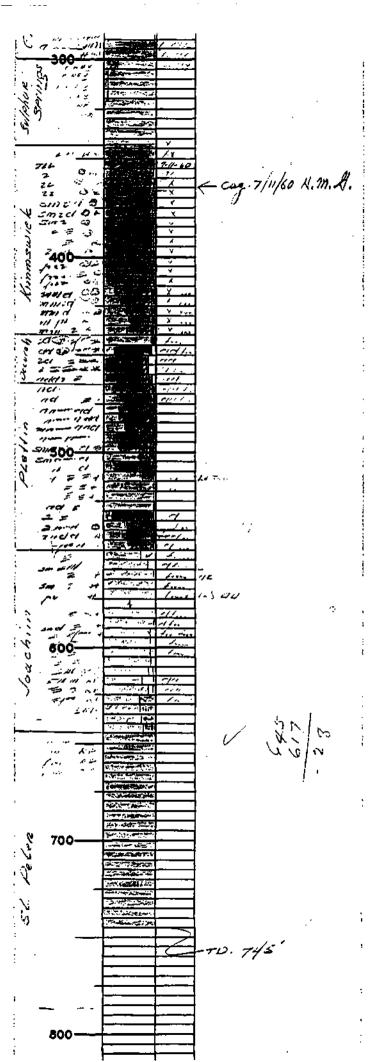
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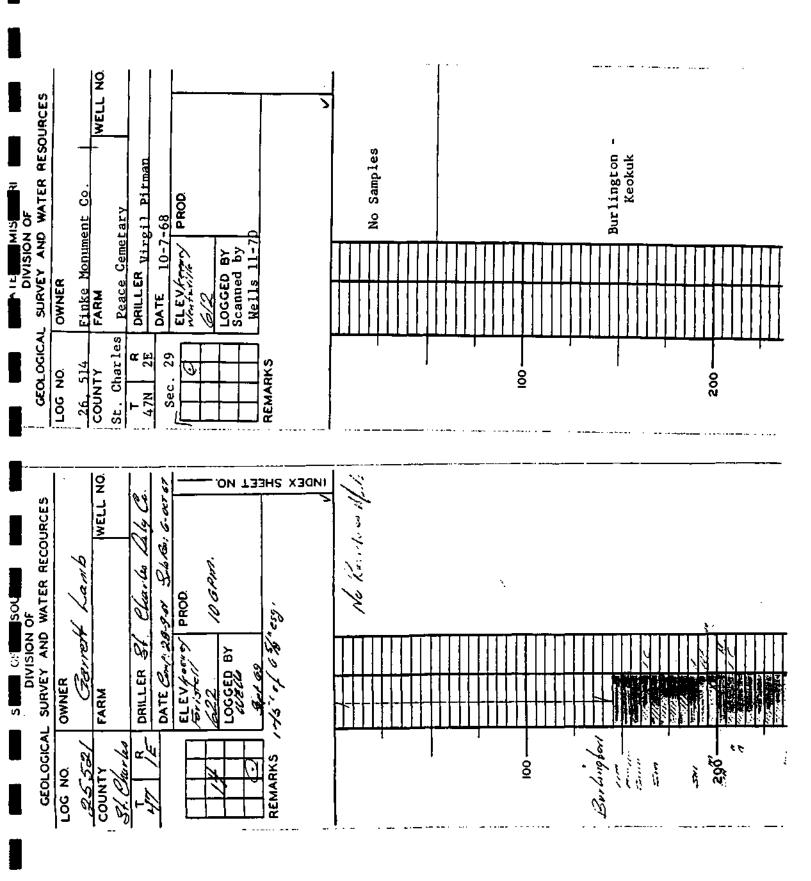


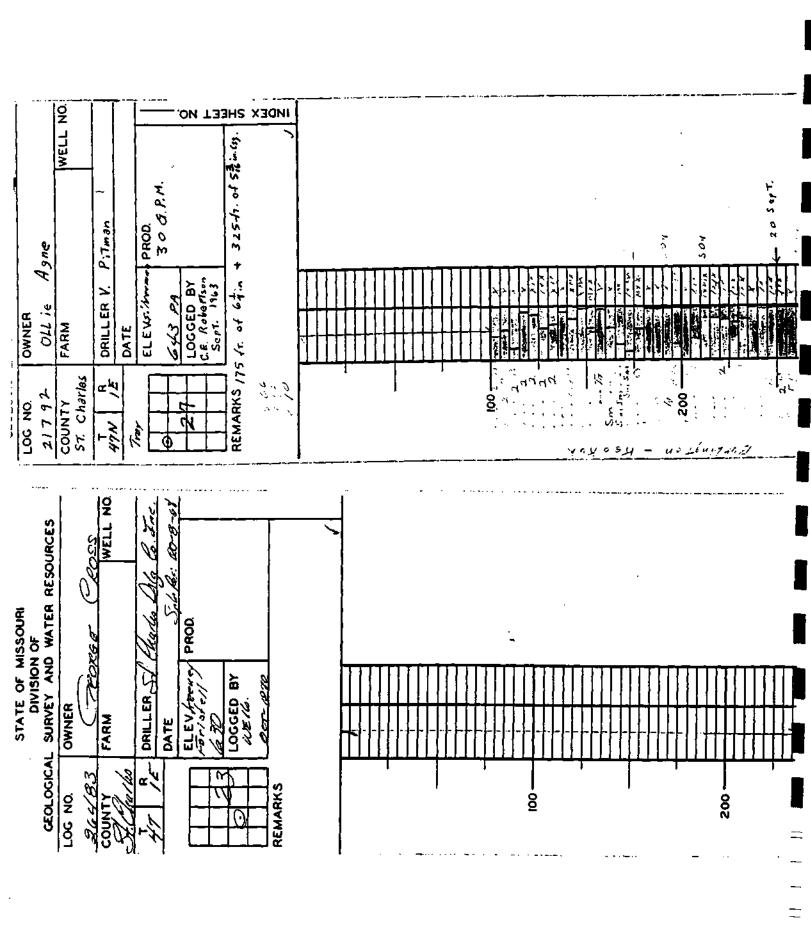
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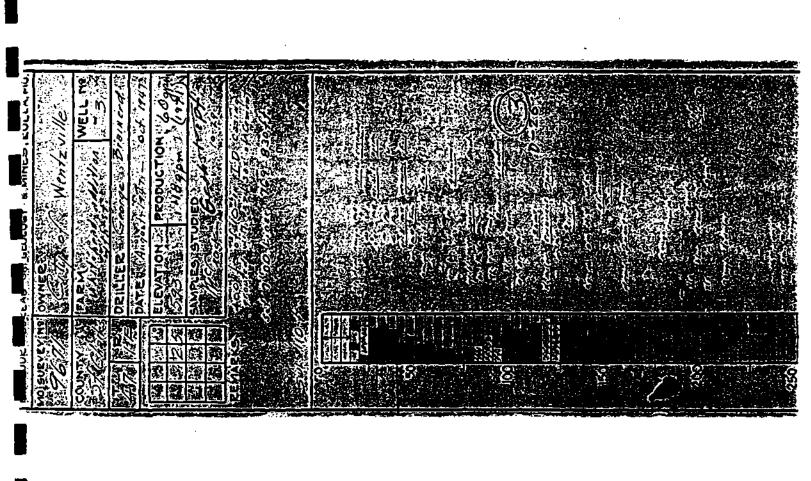
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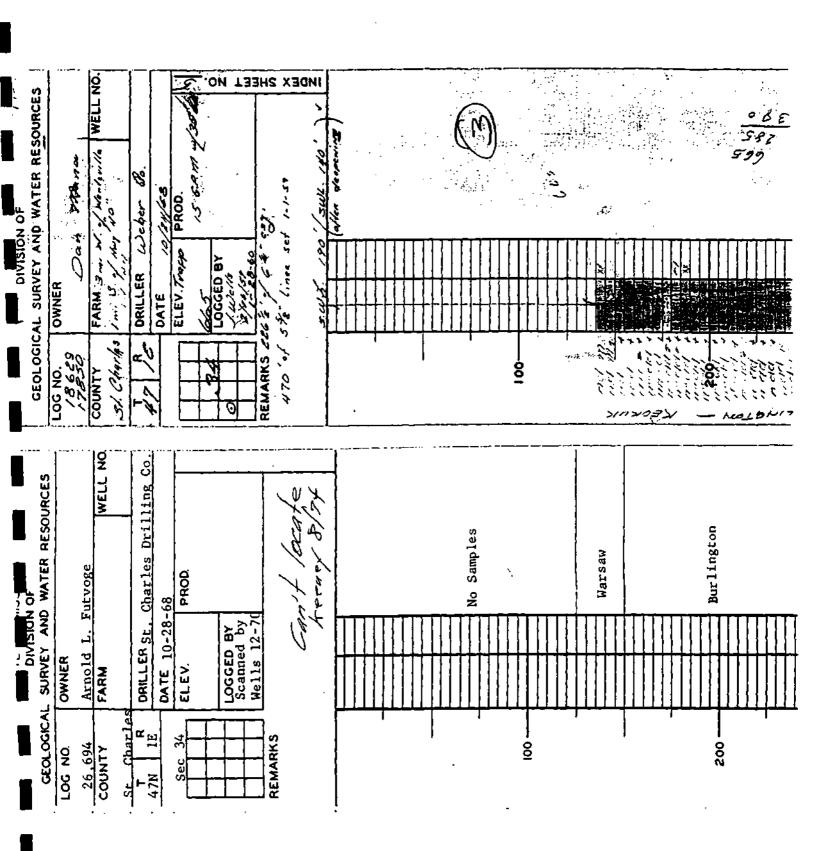




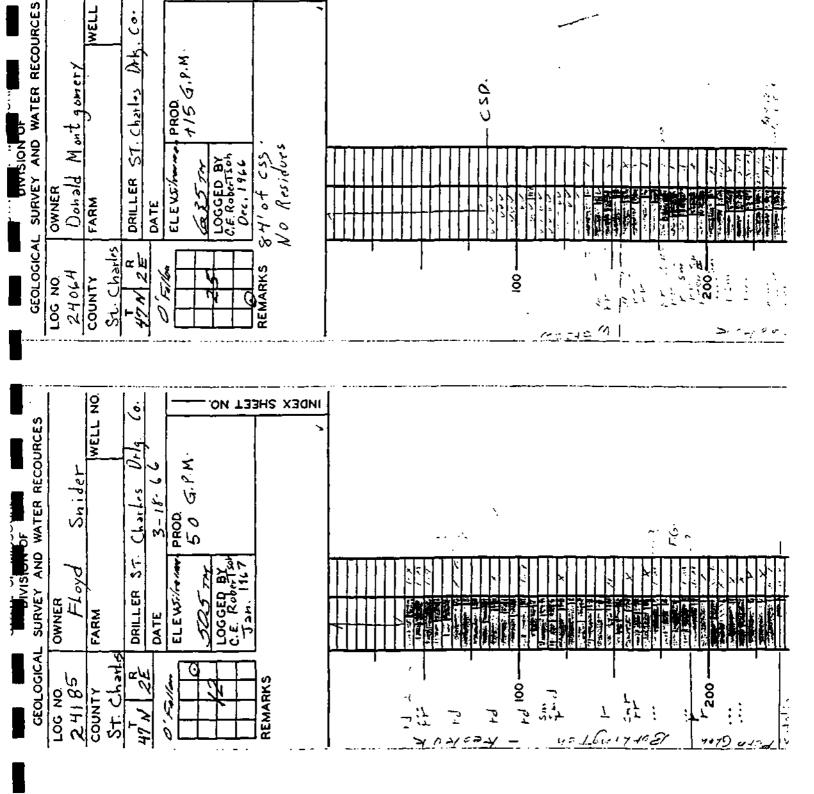




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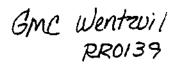
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APPENDIX K RESOURCE RECOVERY CERTIFICATION



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G. TRACY MEHAN III Director



STATE OF MISSOURI DEPARTMENT OF NATURAL RESOURCES

Division of Enemy Division of Environmental Quality Division of Geology and Land Survey Division of Management Services Divisional Parks, Recreation. JRU Historic Presentation

DIVISION OF ENVIRONMENTAL QUALITY P.O. Box 176 Jefferson City, MO 65102

February 20, 1991

Mr. Richard P. Grysiewicz BOC - General Motors Corp. -Wentzville Assembly Center 1500 East Route A Wentzville, MO 63385

RE: Resource Recovery Certification RR0139 Classification - U

Dear Mr. Grysiewicz:

This letter is to inform you that the Department of Natural Resources has completed the review of your certified resource recovery facility application form. After a review of your application form and the supporting documents, the department hereby certifies, for hazardous waste resource recovery, BOC - General Motors Corp. - Wentzville Assembly Center to burn as a fuel in a coal fired boiler waste skimmer oils contingent upon the following conditions:

- 1. The operator shall comply with 10 CSR 25-9.020 and all plans and processes described in the certified resource recovery application.
- 2. The operator shall burn only those wastes listed in the application and in the amounts specified.
- 3. The amount of waste oil stored may not exceed the amount of waste oil that will be burned in the boiler over the period of one year.
- Waste oil must be thoroughly mixed with the coal aggregate pile and 4. this mixture shall be stored to control run-off and shall not be dumped onto or into a coal pile in an uncontrolled manner.
- 5. The quarterly reports as required by 10 CSR 25-9.020(3)(E)6. shall indicate both the amount of waste oil stored at the facility at the time of reporting and the amount of waste oil burned in the reporting period.

Mr. Richard P. Grysiewicz February 20, 1991 Page 2

If you have any questions regarding compliance with your certification, please contact Mr. Wane Roberts at (314) 751-3176.

Sincerely,

DIVISION OF ENVIRONMENTAL QUALITY

Nicholas A. Di Pasquale, Director Waste Management Program

NAD:with

Enclosure

cc: Mr. Bob Stewart, EPA Region VII St. Louis Regional Office

APPENDIX L GASOLINE RELEASE REMEDIATION DOCUMENTATION

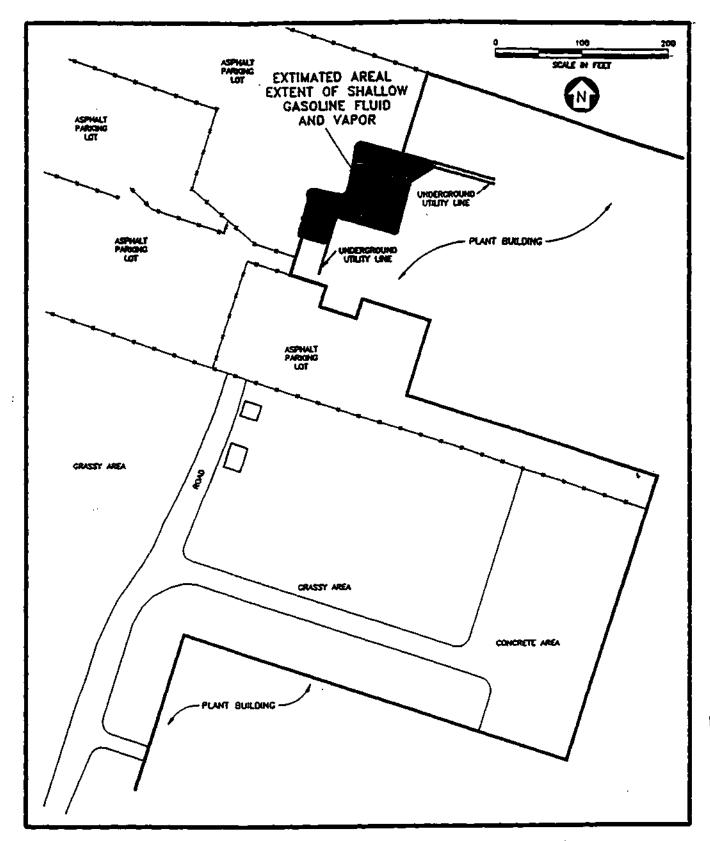
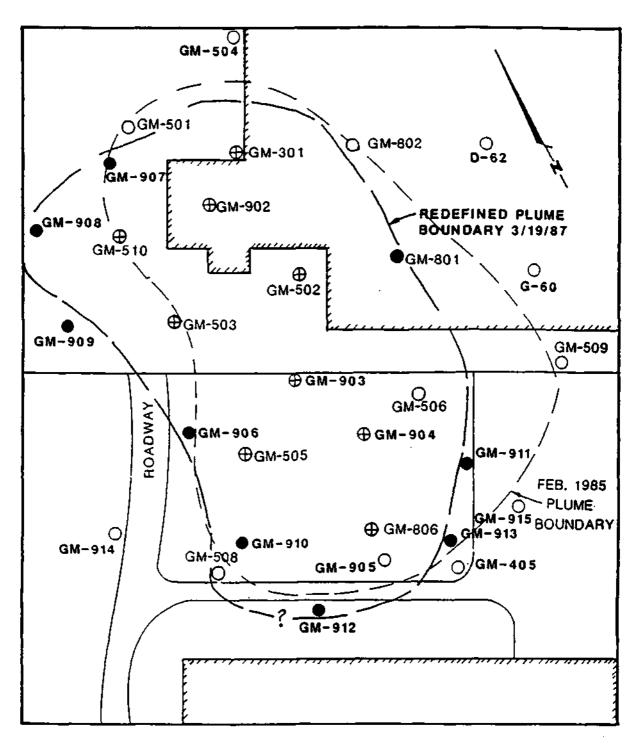


FIGURE 5. Estimated areal extent of shallow gasoline fluid and vapor.

Source: K.L. Deason, MIssouri Department of Natural Resources, letter to Richard Laux, Missouri Department of Natural Resources, October 11, 1988.



LEGEND

- ⊕ Injection Wells
- Recovery Wells
- Observation Wells

COMPOSITE SKETCH OF GM SURFACE FACILITIES AND WELL LOCATIONS FOR SATURATED ZONE BIORECLAMATION PROGRAM



FIGURE 1

Source: K.L. Deason, Missouri Department of Natural Resources, letter to Richard Laux, Missouri Department of Natural Resources, October 11, 1988.

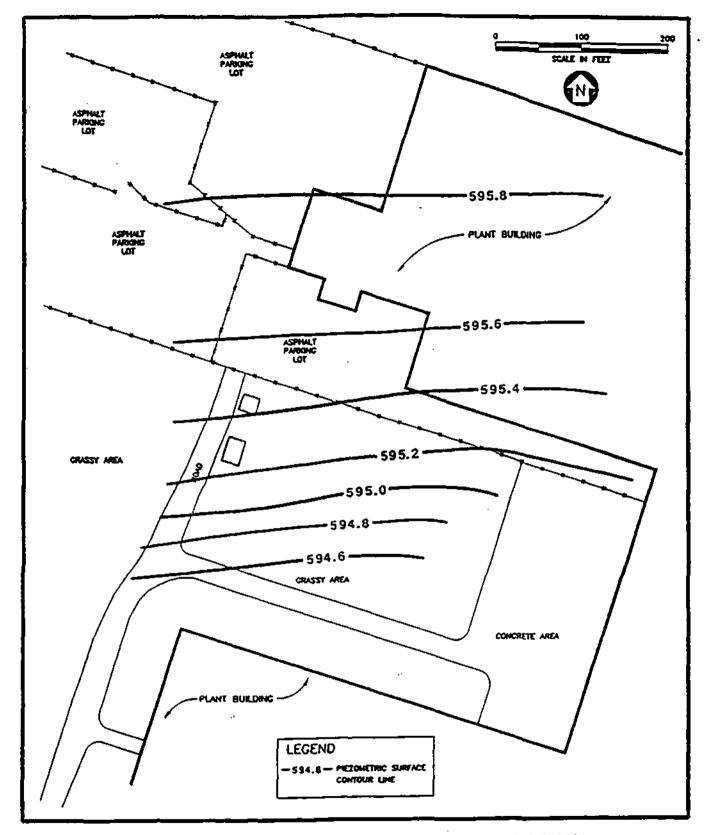


FIGURE 4. Shallow limestone aquifer water surface, (2/13/85).

Source: K.L. Deason, Missouri Department of Natural Resources, letter to Richard Laux, Missouri Department of Natural Resources, October 11, 1988.

Source for following plates 3_η 4_η 5_η 6_η 7_η 9_η 10:

REMEDIAL ACTION PLAN
GENERAL MOTORS
WENTZVILLE ASSEMBLY CENTER
March 19, 1986

JOHN MATHES & ASSOCIATES, INC. 210 West Sand Bank Road P.O. Box 330 Columbia, IL 62236

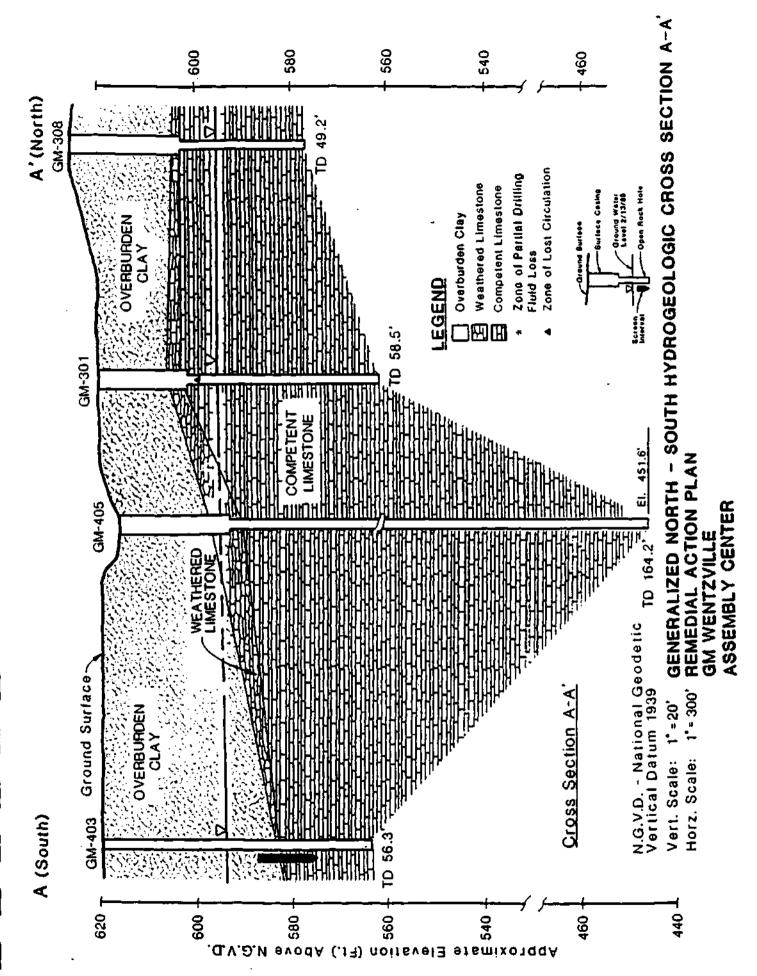
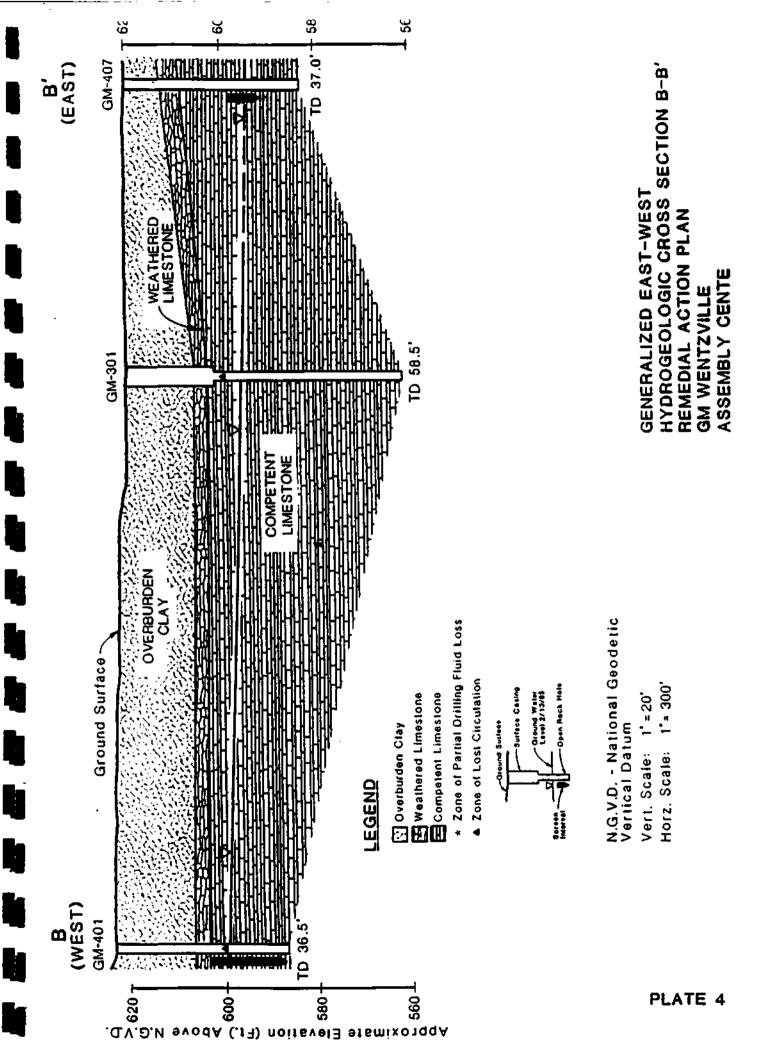
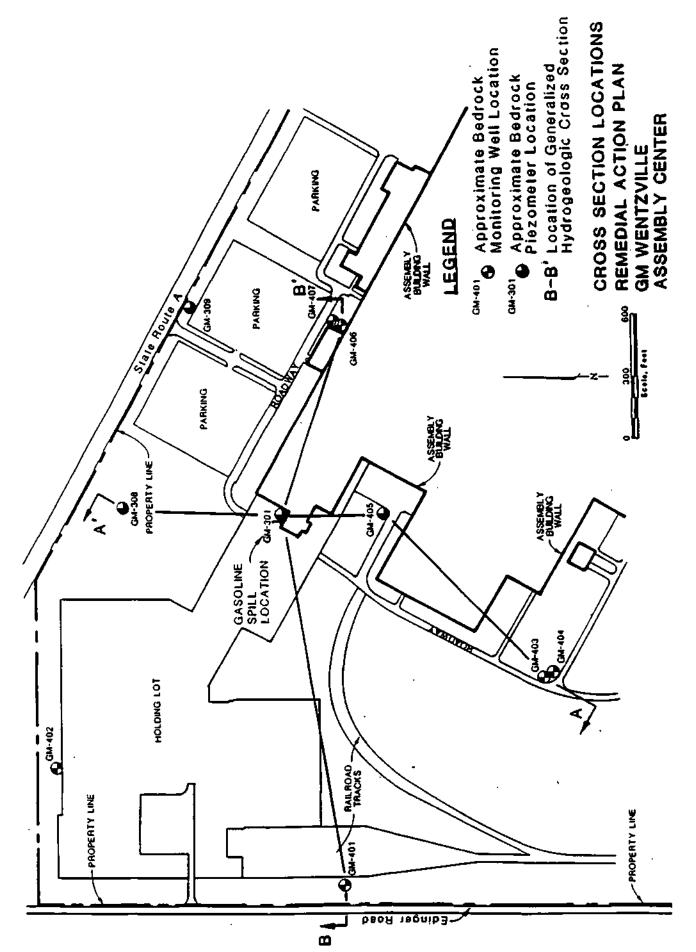
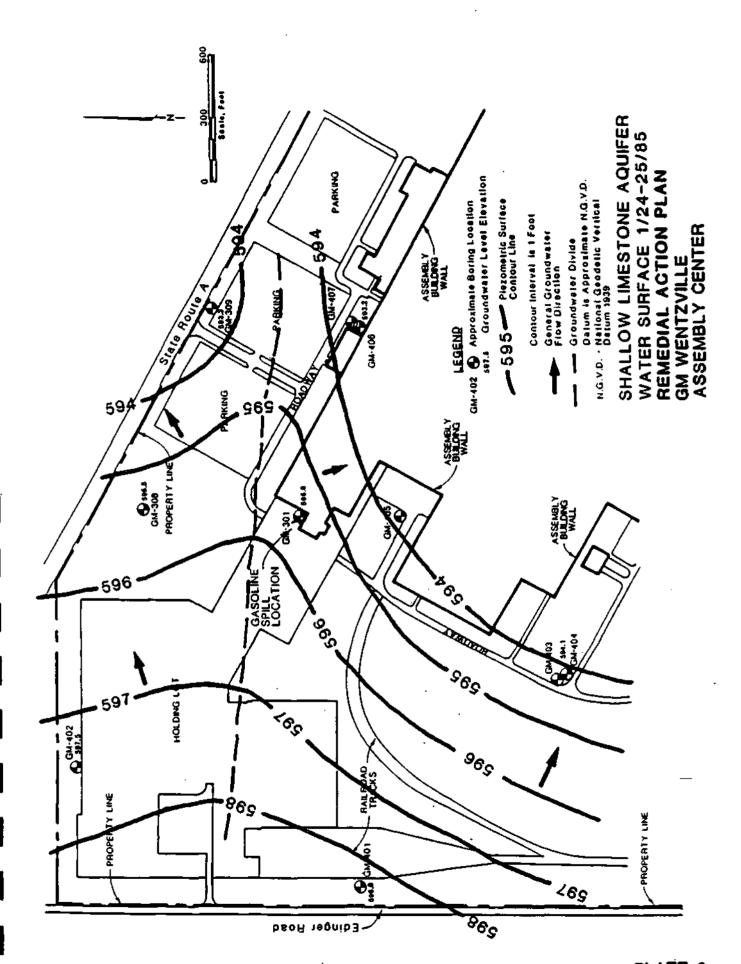
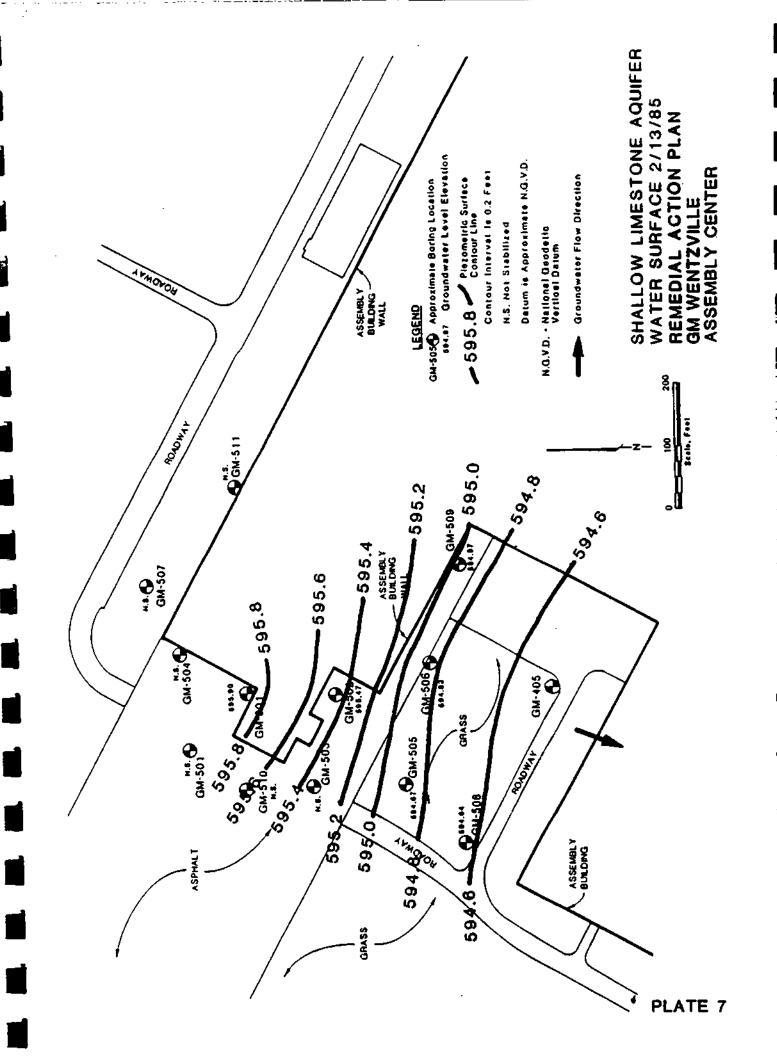


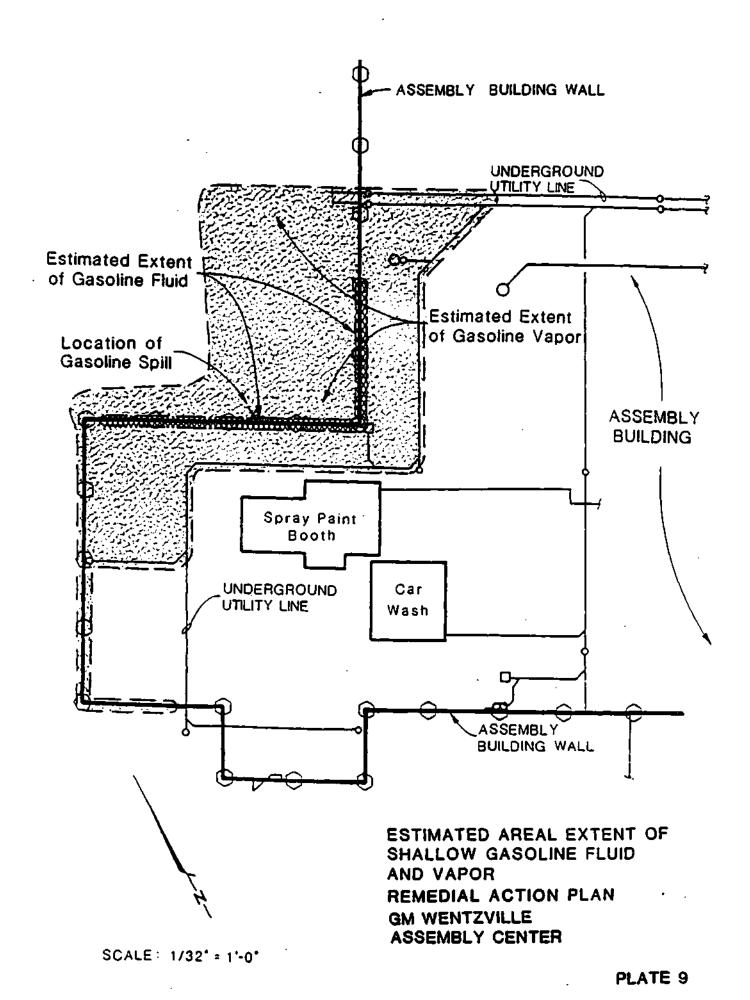
PLATE 3

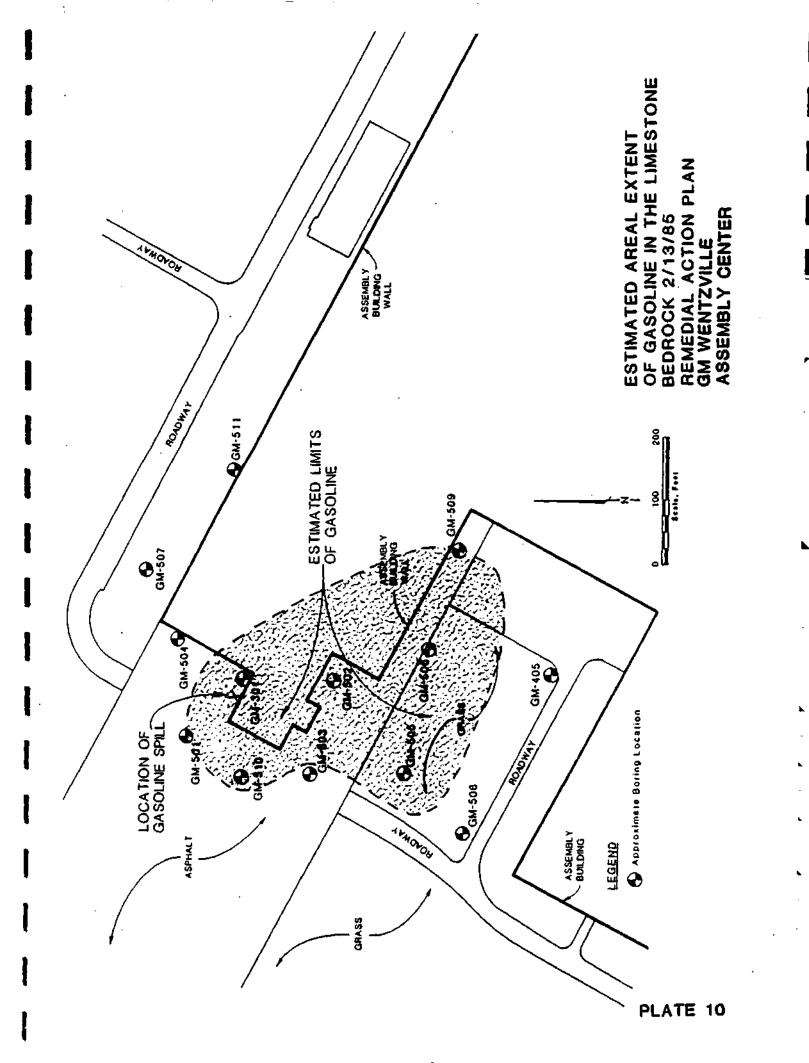












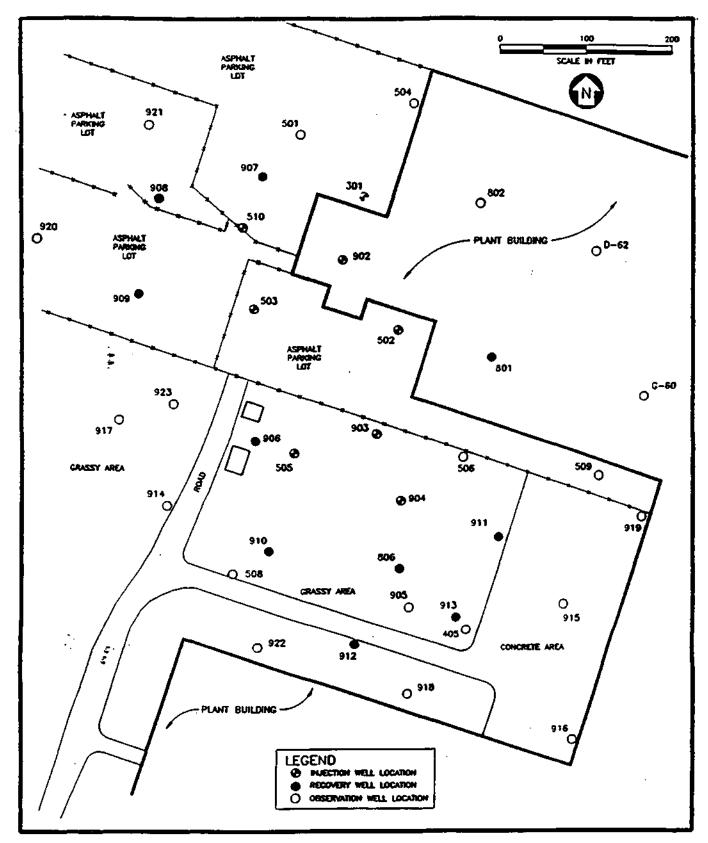


FIGURE 15. Recovery, injection, and monitoring well locations.

Source: Adam Hoffman, Burlington Environmental, transmittal to D. Cooper, Jacobs Engineering Group Inc., March 19, 1992.

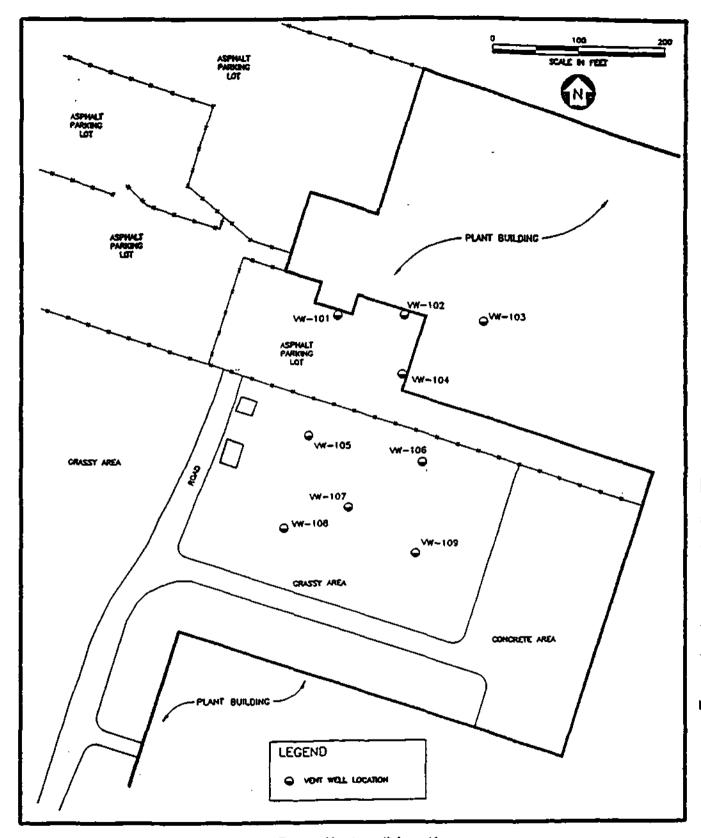
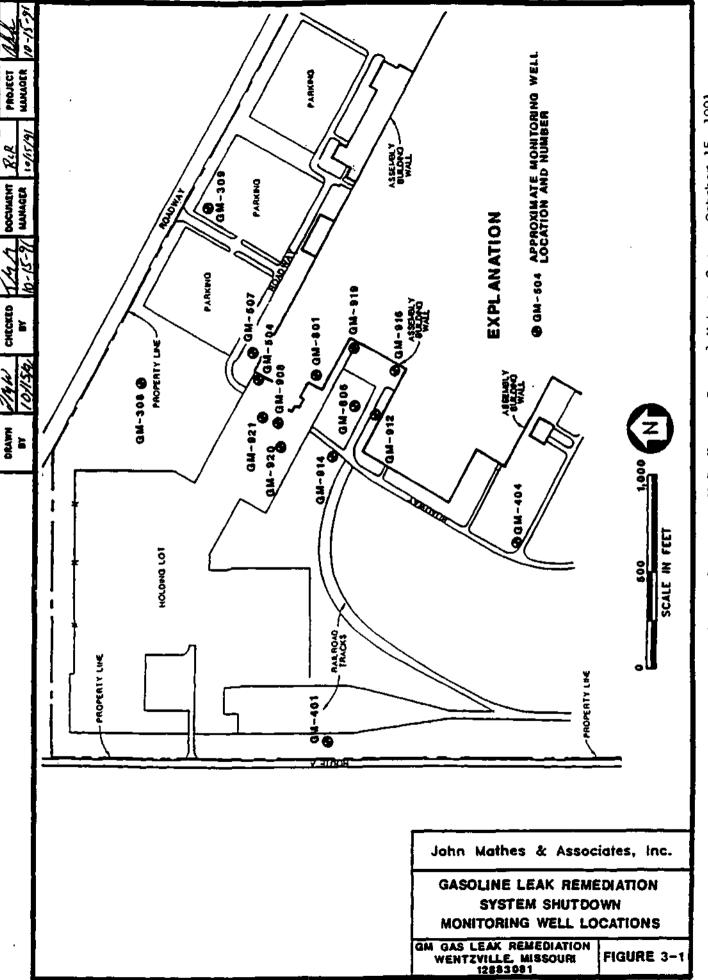


FIGURE 9. Vent well locations.

Source: K.L. Deason, Missouri Department of Natural Resources, letter to Richard Laux, Missouri Department of Natural Resources, October 11, 1988.



Source: A.H. Hoffman, John Mathes and Associates, letter to W.J. Hayes, General Motors Corp., October 15, 1991.

Source for Records of Subsurface Exploration:

HYDROGEOLOGIC INVESTIGATION
SUBSURFACE GASOLINE SPILL
GM ASSEMBLY DIVISION WENTZVILLE PLANT
April 8, 1985
VOLUME II
Appendicies B, C & D

210 West Sand Bank Road P.O. Box 330 Columbia, IL 62236



PROJECT Gasoline Spill Appraisal.	BORING IH-1
Wentzville Assembly Plant, Wentzville, MO	SHEET LOF L
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PROJECT_ Gasoline Spill Appraisal.	BORING TH-2
Wentzville Assembly Plant Wentzville MO	SHEET LOF L
JOB NO. 14-1973	

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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING TH-4

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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING TH-5
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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO SHEET 1 OF 1

JOB NO. 14-1973

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PROJECT Gasoline Spill Appraisal.	BORING TH-7
Wentzville Assembly Plant, Wentzville, MO	SHEET _LOF
JOB NO. 14-1973	

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PROJECT_	Gasoline Spill Appraisal.	BORING TH-8
	lle Assembly Plant, Wentzville, MO	SHEET 1.OF 1
JOB NO	·	

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PROJECT Gasoline Spill Appraisal,

Wentzville Assembly Plant, Wentzville, MO

SHEET 1 OF 1

JOB NO. 14-1973

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PROJECT Gasoline Spill Appraisal.

Assembly Plant, Wentzville, MO

SHEET 1 OF 1

JOB NO. 14-1973

SAMPLE DESCRIPTION OF MATERIALS Shear Strength SVA QP/2D O 1/2 1 17 PL NMC O 50 Surface Elevation 620.01 Surface Elevation 620.01	LL × 100
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DRILLED BY Client - Provided Sub-Contractor Hours after completion	Feet
LOGGED BY Fennessey after completion PIEZOMETER None after completion	



PROJECT_	Gasoline	Spill Ap	oraisal.		BORINGTH-11
Wentzvi	ile Assembly	Plant.	Wentzville.	MO	SHEET LOF L
JOB NO	14-1973				

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PROJECT Gasoline Smill Appraisal. BORING ___M-1_ Wentzville Assembly Plant, Wentzville, Mo.SHEET 1 OF 1 JOB NO. 14-1973

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NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

Dry Feet

_ Feet

48 Hour safter completion

after completion



Maxeiner

Yes

LOGGED BY

PIEZOMETER .

PROJECT Gasoline Spill Appraisal, BORING M-2
Wentzville Assembly Plant, Wentzville, Mo. SHEET J OF 1
JOB NO. 14-1973

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PROJECT Gasoline Spill Appraisal, BORING M-3
Wentzville Assembly Plant, Wentzville, Mo. SHEET 1 OF 1
JOB NO. 14-1973

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NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

after completion

Feet



Yes

PIEZOMETER _

PROJECT Gasoline Spill Appraisal, BORING M-4
Wentzville Assembly Plant, Wentzville, Mo. SHEET OF J
JOB NO. 14-1973

		SAMP	LE	П	DESCRIPTION OF MATERIALS		(bcl)			She			_	, tsf		
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DEPTH (II)	NUMBER	INTERVAL AND TYPE	CED	REMARK		(per o m)	WEK	-	PL	<u> </u>		NM	C		Ĺ	<u></u>
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2.5]	Light Gray-Brown Sandy CLAY		Į	\parallel	‡			_	7	-		\Box
					w/Silt, Limestone Fragments, Possible FILL, CL			ᄩ	+			_	\pm	<u> </u>		
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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, Mo. SHEET LOF L

JOB NO. 14-1973

CONCRETE SLAB NOIS 2 SS 6/4 2.9 3 SS 6/4			SAMP	LE		DESCRIPTION OF MATERIALS	-	<u>3</u>	ev.				-		11/-0	
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10.0 6ASS 18/2 Lt Gr-Br Sa CIAY w/Ls frag, Pos FILL CL TOB Note: 1. Intermixed Crushed LIMESTONE & Light Gray- Brown Clayey SAND, FILL DRILLING METHOD 3 3/4 & 8 1/4" Hollow Auger DATE DRILLED 11-24-84 Encountered at - Fee		"	33	10/6	1		Pushed	1	╿┞		-	-	-	1-1	_ _	_
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PROJECT Gasoline Spill Appraisal, BORING M-6
Wentzville Assembly Plant, Wentzville, Mo. SHEET TOF I
JOB NO. 14-1973

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PROJECT Gasoline Spill Appraisal BORING M-7
Wentzville Assembly Plant, Wentzville, Mo. SHEET 1 OF 1
JOB NO. 14-1973

		SAMP	LE		DESCRIPTION OF MATERIALS		pc()					ngth,		
Ξ			<u>_</u>	*		BLOWS	DRY UNIT WEIGHT (pcl)	SV2	1/2		P/₃□ 	11/2		21/2
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PROJECT Gasoline Spill Appraisal,
Wentzville Assembly Plant, Wentzville, MO
JOB NO. 14-1973

BORING GM-301 SHEET LOF _2_

		SAMP	1 F	П	DECORIDATION OF MATERIALS		£	Shear Strength, tsf	
) }					DESCRIPTION OF MATERIALS	DI OWE	1 (P	SVA QP/10 QU/10	o
Ε.		164	`≥€	×	(Color Modifier MATERIAL, Classification)	BLOWS (per 6 in)	ΉĐ	0 ½ 1 1½ 2	21/2
풀	E B	YPI	뜻유	REMARK	·		WEI	PL NMC LL	
DEPTH (II)	NUMBER	INTERVAL AND TYPE	ADVANCED / ECOVERED (In)		Soil Classification System <u>Unified</u>		DRY UNIT WEIGHT (pct)	1 	100
ויו	ž	ZA	30	SEE	Surface Elevation 620.01		ΥU	Rock Quality Designation	
			A iii	S	Surface Elevation 020.0		Ha	0 50	100
	1	SS	18/12	1	CRUSHED LIMESTONE, FILL	0 0 0			-
	2	SS	18/18	İ	Light Gray CLAY w/Sand, Silt.	8-8-3		▋ ┊╶╿╶╏╶╏┈╏┈╏┈╏┈╏	┥
\vdash				!	Possible Fill, CH	3-3-7			_
-5-	3	3T	16/16		Br Sa CLAY w/Si Tr Gravel, CL				٦.
\vdash	4	SS	15/10	1	Gray-Brown CLAY w/Sand, Silt, CH	√3''-21 - 26			
$\vdash\vdash$	5	SS	18/16	j		9-17-21		<u> </u>	4
	6	SS	18/14			6-14-19			
-10-	7	SS	18/15			8-15-27			+
	8	SS	18/14		•	6-15-18			\dashv
┢	9	SS	18/14		Brown CLAY w/Sand, Silt,				\dashv
	l -	33	9/8	2	Limestone Fragments, CH	8-15-18 7-50/3"	l		\exists
15-				-	Wthd, Thin-Bedded, Shaley LIMESTONE		1		+
	Run				w/Some Clay-Filled Seams -Clay-Filled Seams @16.4, 16.7				\dashv
	#1	NW	48/43		Moderately-Wind, Thin-Bedded LIMESIONE	•	ł		コ
<u> </u>					w/Shaley Seams	İ			\dashv
20-					-flay-filled Seam 319.47. -Upeo fracture 20.0-20.2, \$ 20.4-20.87 -Shattered Zone 20.9-21.0		•		+
	Run #2	NW	62/54	1	Slightly-Wthd to Unweathered, Thin-Bedded	ł			ゴ
	" -	1.43	02/54	-	Shaley LIMESTONE				_
\vdash)				-Open Void 22.6-22.8' -1" Shattered Zones @23.6', 24.0', 28.5'		ľ		-
-25-	i			l	-1 Shattered Times Gestor, 2410 , 2015				_
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├	Run			l					-
	_	. WM	114/		-Shattered Zone 28.9-29.31				
30-	1		''-		Unweathered, Medium to Thick-Bedded				⋾
				1	LIMESTONE w/Thin-Bedded Shaley Zones				\dashv
	. .	 	1						-
-35-	Run	1	120/	1					ユ
	#4	NW	120	<u></u>		<u> </u>	<u> </u>		_
			THOD		Hollow Auger & NX Wire Line			OUNDWATER LEVELS	
			D		12/19 - 20/84 Harriss			Encountered at F Hours after completion F	eet eet
LOG	GEO	BY_			Fuhrhop/Maxeiner		<u> </u>		eet
PIEZ	OME	ETER			Yes			after completion F	
N	NT	E. D.	tor to the		tached GENERAL NOTES and NOTATION US	ED ON BECC	าคกร	S OF SURSURFACE FYDI ODATI	ION



PROJECT Gasoline Spill Appraisal,
Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING GM-301
SHEET 2 OF 2

	SAMPLE				DESCRIPTION OF MATERIALS		(bed)	SVA	near Strength,		
(H)	æ	آرا ا	(ln)	HK #	(Color Modifier MATERIAL. Classification)	BLOWS (per 6 in)	GHT	SVΔ 0 ½	QP/10 1 1/2	2	21/4
DEPTH (ft)	NUMBER	INTERVAL AND TYPE	ANCE	REMARK	Soil Classification System Unified		IIT WE	PL +	NMC 	'	. <u>t.</u> × 100
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			-	Г	Unweathered, Medium to Thick-Bedded		I^-			工	
				1	LIMESTONE w/Thin-Bedded Shaley Zones						\Box
	Run			l	2, 100 100 100 100 100 100 100 100 100 10						Ш
	#4	NW	120/	1	-Highly Fractured Zone 37.3-37.4'						Ш
. 40.	. !		120							-	!
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				1	-Brecciated ≈ Horizontal fracture Zone						
		 -			42.2 - 43.1' w/Shattered Zone 42.7-42.9'		Į				 ᡶᡶᡰ
<u> </u>				[-Slightly-Weathered w/Rubbly Zones 43.1 -						
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PROJECT Gasoline Spill Appraisal, BORING GM-302
Wentzville Assembly Plant, Wentzville, MO
JOB NO. 14-1973

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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING GM-303
SHEET 1 OF 1

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PROJECT.	Gaso	<u>line Spil</u>	<u>l Appra</u>	isal	_	BORING	GM-30	14
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JOB NO	14-19	973						

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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant. Wentzville. MO

JOB NO. 14-1973

BORING GM-305

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PROJECT Gasoline Spill Appraisal BORING GM-306
Wentzville Assembly Plant, Wentzville, MO
JOB NO. 14-1973

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NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.



Inha Blathan & Associator Inc

PROJECT Gasoline Spill Appraisal, BORING GM-307
Wentzville Assembly Plant, Wentzville, MO SHEET 1 OF 1

JOB NO. 14-1973

	!	SAMP	LE		DESCRIPTION OF MATERIALS		Eg.	614		Shear		_			
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NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

after completion

after completion

Feet

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Harriss/Maxeiner

Yes

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PIEZOMETER _

PROJECT Gasoline Spill Appraisal
Wentzville Assembly Plant, Wentzville, MO
JOB NO. 14-1973

SHEET _LOF _2___

	,	SAMP	LE	П	DESCRIPTION OF MATERIALS		pct)		ar Strength,		
ε			(jg)	*	(Color Modifler MATERIAL, Classification)	BLOWS (per 6 in)	DRY UNIT WEIGHT (pct)	SV∆ 0 ½	QP/20 1 11/2	QU/2C	
DEPTH (II)	NUMBER	INTERVAL AND TYPE	ADVANCED / RECOVERED (in)	REMARK	Soil Classification System Unified		T WE	PL +	NMC	LL ×	.
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	Run	1			<u>-Washed Out Clay Seam 25.5-25.6'</u> Slightly-Wthd to Unweathered, Medium to						<u> </u>
	#2	NW	60/55		Thin-Bedded LIMESTONE w/Thin-Bedded	İ					<u>ا</u> [
<u> </u>		<u> </u>	}		Shaley Zones					┼-┤-	4
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					-Moderately-Wthd, Calc Shale Zone 28.1-						╛
	Run				28.3' -Becoming Unweathered Below 28.3'						\Box
<u></u>	#3	NW	120/		-Slight-Weathered Zone 32.7-33.3'					+++	4
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PROJECT Gasoline Spill Appraisal

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING GM-308

SHEET 2 OF 2

	;	SAMP	LE		DESCRIPTION OF MATERIALS		pct)		near Strength		
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PROJECT Gasoline Spill Appraisal, BORING GH-309
Wentzville Assembly Plant, Wentzville, MO
JOB NO. 14-1973
BORING GH-309
SHEET 1 OF 2

	;	SAMP	LE		DESCRIPTION OF MATERIALS		(pct)	SVA	Shear S	ireng	th, t		/20
(E)	A	IL E	(III)	RK #	(Color Modifler MATERIAL Classification)	BLOWS (per 6 in)	IIGHT		½ <u>1</u>	1	1/4	_	21/2
DEPTH (II)	NUMBER	INTERVAL AND TYPE	ANCE FREI	REMARK	Soil Classification System Unified		W TI	PL *_	· · · · · · · · · · · · · · · · · · ·	NMC _ *_ 50	<u> </u>		LL X 100
	N	AN	ADVANCED / RECOVERED (In)	SEE	Surface Elevation 619.31		DRY UNIT WEIGHT (pcl)		Rock C		Desig	natio	ــــــــــــــــــــــــــــــــــــــ
					Brown CLAY w/Sand, Silt Trace Gravel, CH								
-5-	1	SS	13/14	:		2-3-7							
-10-	2 Run		11/4		Brown Clayey SILT, SM -Weathered Limestone @10.1' Moderately to Slightly-Wthd SHALE Moderately-Wthd, Thin-Bedded Shaley	7-7/5 ^{:1} 50/0'							
-15-	#1	NW	48/44		LIMESTONE Interbedded w/Slightly to Moderately-Wthd Limestone and Moderately to Wthd, V Shaley Limestone & Calc Shale								
-20-	Run	NW	120/ 115		Slightly-Wthd, Thin to Medium-Bedded LIMESTONE w/Moderately-Wthd, Thin-Bedded, Shaley Limestone & Occasional Wthd, Thin Shale Seams								
-25-		-			-Weathered Fractured Zone 22.8-23.0' Slightly-Weathered to Unweathered, Thin to Medium-Bedded LIMESTONE w/Thin-Bedded								
	Run	иw	84/86		Shaley Zones & Seams -Becoming Unweathered Below 24.4'								
-30-	Rur	иw	36/34									+	#
-35-	Rur #5	NW								#	\square	\ddagger	$ \uparrow $
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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant. Wentzville, MO SHEET 2 OF 2

JOB NO. 14-1973

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- 40-	Run #5		120/		Unweathered, Medium to Thick-Bedded, Slightly Shaley LIMESTONE w/Occasional Thin-Bedded Shaley ZonesBecoming Limestone w/Occasional Thin Shaley Seams Below 40.2'										
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PROJECT Gasoline Spill Appraisal.	BORING GM-401
Wentzville Assembly Plant, Wentzville, MO	SHEETOF 2
JOB NO. 14-1973	

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	1				Brown Sandy CLAY w/Silt Trace	•	Ì	口口			ᅼ	#		寸	<u> </u>
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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO SHEET 2 OF 2

JOB NO. 14-1973

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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING GM-402

SHEET 1 OF 2

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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

SHEET 2 OF 2

		SAMP	LE		DESCRIPTION OF MATERIALS		ě	_		Shea		_	th, ts	ıł	
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PROJECT Gasoline Spill Appraisal, BORING GM-403
Wentzville Assembly Plant, Wentzville, MO
JOB NO. 14-1973
SHEET 1 OF 2

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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO
SHEET 2 OF 2

JOB NO. 14-1973

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NOTE: Refer to the altached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

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Yes

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PROJECT Gasoline Spill Appraisal,
Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING GM-404
SHEET 1 OF 1

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PROJECT Gasoline Spill Appraisal, Wentzville Assembly Plant, Wentzville, MO JOB NO. 14-1973

BORING GM-405 SHEET 1 OF 5

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		<u> </u>	-			BLOWS	17 (p	SVA	QP/20	QU/10
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-20-	B	<u>\$\$</u>	18/14		Brown CLAY w/Limestone & Chert Fragments, CH	11-27-45	ļ			
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-25-	9	SS	18/12			<u> </u>	Į			<u>- </u>
	1				Slightly-Wthd, Medium-Bedded LIMESTONE					
	Run	-			w/Some Vug. Porosity, & Thin-Bedded Zones - becoming Unweathered below 27.5'		ŀ			3
	l	NW	104/							┋┼╌┼╌┤┃
30~			104		Unweathered. Medium to Ihin-Bedded					┋┼╶┼╌┤┤
		1			LIMESTONE w/Slightly Wthd Zones	•				
					- Thin, Weathered Calc Shale 30.0-30.1					▋┤╶┤╴┤┃
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DRII :	LING	3 MF1	THOD	_	dollow Auger & NX Wire Line	·	GRO	NUNDA	ATER LEVEL	 .S
)		1/14-16/85				red at25.3	Feet
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LOG				_	tileman/Maxeiner				er completion	Feet
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PROJECT Gasoline Spill Appraisal, SORING GM-405
Wentzville Assembly Plant, Wentzville, MO
JOB NO. 14-1973

j		SAMF	LE	Γ	DESCRIPTION OF MATERIALS		÷	Shear Strength, tsf
_		_	=	*	DESCRIPTION OF MATERIALS	BLOWS	<u>B</u>	SVA QP/20 QU/20
(ii)	Я	7, 12	(ul) d	I'R	(Color Modifler MATERIAL, Classification)	(per 6 ln)	5	0 % 1 1% 2 2%
рертн	NUMBER	INTERVAL AND TYPE	ADVANCED RECOVERED	REMARK	Soil Classification System <u>Unified</u>		DAY UNIT WEIGHT (pcl)	PL NMC LL X 100
	Z	NA.	ADV RECO	SEE	Surface Elevation 615.8'	-	DAY U	Rock Quality Designation 0 50 180
					Unweathered, Med to Thin-Bedded LIMESTONE w/Slightly Wthd Zones	_		
	Run #2		120/		NOTE 1 Unweathered. Med to Thin-Badded LIMESTURE w/Some Shattering & Vertical Fractures			
	# 4		1207		Unweathered, Med to Thick Be Idea LIMESTONE w/Welded Vertical Fractures			
45.			i		- Med to Thin-Bedded Zones 44.2-45.1' - Unit Bedded 45.1-45.9'			
454					Slightly-Wthd, Thin to Med-Bedded			
<u> </u>	Run #3		120/		LIMESTONE w/Some Chert			
- 50-			120					
					Slightly-Wthd, Med-Bedded, Argillaleous. Cherty LIMESTONE w/light to Moderately-			
- 55-					Wthd, Slight to Moderate-Porous, Welded Shatered Zones -Shattered Zones Cemented W/CaCo. &			
		NW	120/		Moderately-Porous 55.5 - 55.1' -Slightly-Porus 57.4-58.7' -Highly-Fractured Below 59.7'			
60.			120		-Porous Irr Zones Below 60.4' -Y Yugy & Highly-Fractured Zones w/Partial Filled Yugs Below 60.7 -Slightly-Porous Below 61.6'			
		<u> </u>			-Med to Thick-Bedded, V-Slight Parous Shattered Zone w/Argillaceous Matrix 62.4-64.21			
. 65.					Unweathered, Med to Thick-Bedded, Non- Porous Cherty LIMESTONE w/V Cherty Zones			
	Rսո #5	NW	120/					
70.			120					
DRIL	LIN	G ME	THOD	_	Hollow Auger & NX Wire Line		GRO	OUNDWATER LEVELS
		ILLE			1/14-16/85			Encountered at : 25.3 Feet
		BY_			Marlo Hileman/Maxeiner		<u>4</u> 0	ays after completion 24.6 Feet
		ETER ETER		_	No		-	after completion Feet after completion Feet
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PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

PROJECT Gasoline Spill Appraisal.

BORING GM-405

SHEET 3 OF 5

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'	<u> </u>	SAMI			DESCRIPTION OF MATERIALS	BLOWS	DRY UNIT WEIGHT (pcl)	SVA QP/20 QU/20
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H	NUMBER	INTERVAL AND TYPE	VAN		Soil Classification System Unified		Ž	0 50 100
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	Run			'	Med to Thick-Bedded, Argillaccous, V Cherty LIMESTONE w/Zones of Little to No Chert.		•	
<u> </u>	#5	NW			Chert Moderately to Slightly-Porous w/Small			
		<u> </u>			Vugs 74.6' - 75.5'			
 75							İ	
					Thick-Bedded LIMESTONE w/Some Argillaceous			
-	Run ≇6	NW	120/		Slightly-Cherty Zones			
- 80-	1	}	120	l	- w/Slightly-Weathered, Slightly-Porous			
L.		ļ. '			Welded Shattered Zones 81.6 - 83.0'			
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	Run	4			Thick to Med-Bedded LIMESTONE w/ Occasional Chert & Cherty Zones			
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		G ME	THOD_ D		Hollow Auger & NX Wire Line			Encountered at25_3 Feet
	•	BY_			Marlo			ays after completion 24.6 Feet
		8Y_			Hileman/Maxeiner No			after completion Feet
	OMI OTI	ETEA -						after completion Feet



PROJECT Gasoline Spill Appraisals

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING GM-405

SHEET 4 OF 5

		SAMF			DESCRIPTION OF MATERIALS		(£	SVA	Shear Strength, ta	f QU/zO
8	~	7,5	(n) c	RK #	(Color Modifier MATERIAL, Classification)	BLOWS (per 6 in)	IGHT	0 %	1 11/2	2 21/2
DEPTH (11)	NUMBER	INTERVAL AND TYPE	ADVANCED /	REMARK	Soil Classification System <u>Unified</u>		DRY UNIT WEIGHT (pel)	PL O +	NMC • 50	LL × 100
	ž	N. A.	ADV.	SEE	Surface Elevation 615.81		DRY CA		Rock Quality Design	nation 100
	Run	NW	120/		Thick to Med-Bedded LIMESTONE w/ Occasional Chert & Cherty Zones					
110			120		- Thick-Bedded Below 112.2'		: :			
115.	Run #10	1	120/ 120		Slightly-Wthd, Thin-Bedded, Argillaceous, Cherty LIMESIONE w/Numerous Zones of Cherty Porous. & Open to Partly-Filled Med To Lg Yugs - Thin to Med-Bedded Below 116.7' - Lg Partly-Filled Void 122.0-122.2' - Shattered Zone 122.2 - 122.5'					
125-	Run #11		120/ 120		Unweathered, Thick-Badded LIMESTONE w/Occasional Chert Zones					
135	Run #12		120/ 120		Med to Thick-Bedded LIMESTONE w/Chert Zones - Multiply-Fractured, Cemented Chert Zone 135.2 - 135.4' - Highly-Fractured Chert Zone 136.7 - 137.1' Med to Thick-Bedded LIMESTONE	,				
DATI DRIL LOG	E DA LED GED	G ME' IILLEI BY _ BY _			Hollow Auger & NX Wire Line 1/14-16/85 Marlo Hileman/Maxeiner No			Encounter ays after after	ATER LEVELS red at 25.3 er completion 2½ er completion	Feet



PROJECT Gasoline Spill Appraisal.

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING CM-405
SHEET 5 OF 5

		SAMP	LE		DESCRIPTION OF MATERIALS	_	6	Shear Strength, taf
1_					DESCRIPTION OF MATERIALS	BLOWS	9	SVA QP/20 QU/2O
Ξ	æ	يا آر	(E)	¥	(Color Modifier MATERIAL, Classification)	(per 6 in)	164	0 1/2 1 11/2 2 21/2
DEPTH (ft)	NUMBER	INTERVAL AND TYPE	ADVANCED / RECOVERED (In)	E REMARK	Soil Classification System <u>Unified</u>		DAY UNIT WEIGHT (pcf)	PL NMC LL X 0 50 100
		= 4	REC	SEE	Surface Elevation615.8'		DAY	Rock Quality Designation 0 50 100!
145	Run # 1 4	NV	120/ 120 120/ 120		Hed to Thick-Bedded-LIMESTONE - Chert Zone 146.7 - 147.3* Thick to Med-Bedded, Slightly Araillaceous LIMESTONE w/Some fossils NOTE 2 Thick to Massively-Bedded, Non-Porous LIMESTONE w/Porous Yuggy Zones - Chert Zone 155.0-155.4* - Slightly-Porous Zone w/Numerous Small Vugs & w/Smaller Zones of Y-15.2-158.7* - Highly-Vüggy Zone w/Med to Lg Vugs 160.4 - 160.6* - Porous Zone w/Numerous Small Vugs 161.2-161.3* NOTE 1 - Slightly Wthd, Thin-Bedded Shaley & V Cherty Zone 36.1 - 37.6* - w/Chert Below 37.6* NOTE 2 - Porous Zone w/Numerous Small to V Lg CaCo3 Partly-Filled Vugs 151.5-152.2*			
DRIL DATI DRIL LOG	LING E DR LED GED	G ME: HLLEI BY _ BY _ ETER			Hollow Auger & NX Wire Line 1/14-16/85 Marlo Hileman/Maceiner	<u> </u>		DUNDWATER LEVELS Encountered at 25.3 Feet Days after completion 24.6 Feet after completion Feet



PROJECT Gasoline Spill Appraisal, BORING GM-406

Wentzville Assembly Plant, Wentzville, MO SHEET LOF 1...

JOB NO. 14-1973

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PROJECT Gasoline Spill Appraisal, BORING GM-407
Wentzville Assembly Plant, Wentzville, MO SHEET 1 OF 1

JOB NO. 14-1973

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PROJECT_	Gasoline Spill Appraisal	80RING
	Assembly Plant. Ventzville MO	SHEET 1_OF 1
IOR NO	14-1973	

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PROJECT Gasoline Spill Appraisal	BORING GM-502
Ventzville Assembly Plant Wentzville. MO	SHEET 1 OF 1
IOR NO. 15-1973	

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PROJECT Gasoline Spill Appraisal	BORINGGN_503
Wentzyille Assembly Plant, Wentzwille HO	SHEET 1_OF _1
JOB NO. 11-1973	

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PROJECT Gasoline Spill Appraisal BORING __6M-504___ Ventzville Assembly Plant, Ventzville, MO SHEET 1_OF 1 JOB NO. 14-1973

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PROJECT Gasoline Spill Appraisal	BORING
Ventzville Assembly Plant, Ventzville, MO	SHEET 1_OF _1
JOB NO. 14-1973	

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PROJECT Gasoline Spill Appraisal

Wentzville Assembly Plant, Wentzville, MO

JOB NO. 14-1973

BORING 6H-506

SHEET 1 OF 1

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PROJECT	Gasoline Spill Appraisal	BORING GH-507
	Assembly Plant, Wentzville. HO	SHEET 1 OF 1
IOB NO	14-1973	

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PROJECT_	Gasoline Spill Appraisal	
	le Assembly Plant, Ventzville. MO	SHEET 1_OF 1
IOR NO	16-1973	

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NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION. for abbreviations, explanations, and qualifications relative to this log.

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PROJECT Ventzville Spill Appraisal	BORING694_509
Ventzville Assembly Plant, Ventzville, MO	SHEET 1_OF1
JOB NO. 14-1973	

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NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

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PROJECT Gasoline Spill Appraisal	BORING 64-510
Ventzville Assembly Plant, Ventzville, MO	SHEET 1_OF _1
IOR NO. 15-1973	

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DRILLING METHOD Hollow Auger 1 Rotary Vash

DATE DRILLED 2/11 - 12/85

DRILLED BY Voqt

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PIEZOMETER Yes

GROUNDWATER LEVELS

Encountered at ____ Feet

Hours after completion Feet

after completion Feet



PROJECT Gasoline Spill Appraisal	BORING GH-511
Ventzville Assembly Plant, Ventzville, MO	SHEET 1_OF1_
JOB NO. 11-1973	

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John Mathes & Associates, Inc. Geotechnical Consultants

210 West Sand Bank Road P.O. Box 330 Columbia, IL 62236-0330 618/281-7173 314/241-1785

May 20, 1986

Missouri Department of Natural Resources Water Pollution Control Board 2010 Missouri Blvd. Jefferson City, Missouri 65101

Attention Mr. Gordon Ackley

Reference General Motors Wentzville
Analytical Result of Groundwater Samples

Dear Gordon:

Enclosed please find a copy of of the analytical results for groundwater samples collected from the monitoring wells at the General Motors Wentzville Assembly Center. These data are submitted as specified in the Remedial Action Plan for the cleanup of the subsurface gasoline occurrence and as required by the permits for the injection/recovery wells.

Sincerely,

JOHN MATHES & ASSOCIATES, INC.

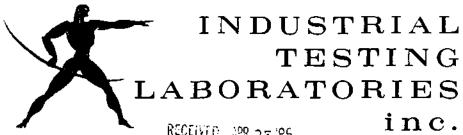
must Ti Lawrence

Conrad T. Lawrence

Manager Environmental Sciences

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Enclosure



RECEIVED 199 25 '85

2350 Seventh Blvd.

St. Louis, Missouri 63104

RECEIVER LEV 199 Chemists Engineers Metallurgists

Report No. 86-4-43

April 25, 1986

314/771-7111

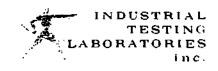
Examination of twenty-one (1) well water samples submitted 4/3/86 and 4/5/86.

John Mathes & Associates, Inc. 210 West Sand Bank Road P.O. Box 330 Columbia, IL. 62236-0330

Attn: Mr. Conrad Lawrence

		TEST REPO	ORT		
	<u>301</u>	302	<u>306</u>	<u>307</u>	<u>308</u>
C.O.D., mg/l	490	7 19	58	14	16
B.O.D. ₅ , mg/1	43	<i>7</i> 3	12	15	10
T.O.C., mg/l	112	197	14	37	1.9
Oil & Grease, mg/l	70	12	4.2	5.5	1.7
Ammonia as N, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05
Nitrate as N, mg/l	3.51	3.27	0.47	1.35	4.52
Ortho Phosphate as P, mg/1	0.075	0.038	0.047	0.018	0.024
Manganese, mg/l	6.43	2.26	1.18	1.15	*0.03
Copper, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03
Zinc, mg/l	*0.03	0.03	*0.03	*0.03	0.04
Molybdenum, mg/l	*0.1	*0.1	*0.1	*0.1	*0.1
Magnesium, mg/l	50	10.8	17.7	19.4	201
Cobalt, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05
Calcium, mg/l	186	135	90	81	373
Sodium, mg/l	135	100	166	147	76
Potassium, mg/l	2.0	10	2.8	3.5	2.0
Iron, mg/1	1.56	3.08	0.48	2.13	*0.05
Lead, mg/l	*0.1	*0.1	*0.1	*0.1	*0.1
Cadmium, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03
Silver, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03
Chromium, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05

^{*}less than



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	<u>309</u>	<u>402</u>	<u>403</u>	404	<u>405</u>
C.O.D., mg/l	16	21	4	8	5
B.O.D. ₅ , mg/l	8	10	4	7	5
T.O.C., mg/l	2.3	1.9	1.3	1.6	1.8
Oil & Grease, mg/l	1.7	1.3	3.9	0.5	1.4
Ammonia as N, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05
Nitrate as N, mg/l	0.23	1.46	2.40	0.54	0.08
Ortho Phosphate as P, mg/l	0.054	0.048	0.018	0.035	0.003
Manganese, mg/l	*0.03	0.13	0.32	0.26	0.17
Copper, mg/l	*0.03	*0.03	*0 . 03	*0.03	*0.03
Zinc, mg/l	*0.03	*0.03	0.24	0.19	*0.03
Molybdenum, mg/l	*0.1	*0.1	*0.1	*0.1	*0.1
Magnesium, mg/1	46	12.3	18.9	25	37
Cobalt, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05
Calcium, mg/l	65	102	98	98	76
Sodium, mg/l	54	7 5	36	36	8.8
Potassium, mg/l	6.0	4.0	2.4	1.6	3.4
Iron, mg/l	*0.05	*0.05	1.68	0.24	0.10
Lead, mg/l	*0.1	*0.1	*0.1	*0.1	*0.1
Cadmium, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03
Silver, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03
Chromium, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05

^{*}less than.

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	<u>501</u>	<u>502</u>	<u>503</u>	<u>505</u>	<u>506</u>
C O D/1	900	31	66	65	68
C.O.D., mg/l	296				
B.O.D. ₅ , mg/l	8	41	13	42	33
T.O.C., mg/l	20	34	4.6	30	8.4
Oil & Grease, mg/l	2.2	103	3.2	22	2.5
Ammonia as N, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05
Nitrate as N, mg/l	0.28	1.56	0.26	0.95	0.36
Ortho Phosphate			0.000	0.045	0.004
as P, mg/l	0.030	0.012	0.038	0.045	0.024
Manganese, mg/l	0.25	1.38	1.66	0.38	1.55
Copper, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03
Zinc, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03
Molybdenum, mg/l	*0.1	*0.1	*0.1	*0.1	*0.1
Magnesium, mg/l	48	39	42	24	40
Cobalt, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05
Calcium, mg/l	121	190	173	115	140
Sodium, mg/l	58	91	118	112	79
Potassium, mg/1	2.8	2.6	9.2	3.0	2.2
Iron, mg/l	0.42	0.18	0.07	*0.05	0.82
Lead, mg/l	*0.1	*0.1	*0.1	*0.1	*0.1
Cadmium, mg/1	*0.03	*0.03	*0.03	*0.03	*0.03
Silver, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03
Chromium, mg/1	*0.05	*0.05	*0.05	*0.05	*0.05

^{*}less than.



Report No. 86-4-43										
	<u>507</u>	508	509	<u>510</u>	<u>511</u>					
C.O.D., mg/l	17	26	9	183	13					
B.O.D. ₅ , mg/1	9	7	10	73	12					
T.O.C., mg/1	3.6	5.1	1.7	55	2.5					
Oil & Grease, mg/l	2.0	2.1	0.8	35	0.5					
Ammonia as N, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05					
Nitrate as N, mg/l	3.51	0.28	2.20	1.46	1.97					
Ortho Phosphate as P, mg/l	0.011	0.044	0.036	0.076	0.022					
Manganese, mg/l	*0.03	0.10	*0.03	1.04	*0.03					
Copper, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03					
Zinc, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03					
Molybdenum, mg/l	*0.1	*0.1	*0.1	*0.1	*0.1					
Magnesium, mg/l	64	34	8.2	37	18.6					
Cobalt, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05					
Calcium, mg/l	157	155	40	204	63					
Sodium, mg/l	83	117	46	88	90					
Potassium, mg/l	8.2	1.6	2.2	7.2	7.0					
Iron, mg/l	*0.05	*0.05	0.10	4.38	*0.05					
Lead, mg/l	*0.1	*0.1	*0.1	*0.1	*0.1					
Cadmium, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03					
Silver, mg/l	*0.03	*0.03	*0.03	*0.03	*0.03					
Chromium, mg/l	*0.05	*0.05	*0.05	*0.05	*0.05					

^{*}less than.



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	<u>504</u>
C.O.D., mg/l	66
T.O.C., mg/l	19
Ammonia as N. mo/3	*0.05

*less than.

Respectfully submitted,

INDUSTRIAL TESTING LABORATORIES, INC.

Allan M. Siegel, P.E.

Director

Lab No. 66976 RW/hj



•

2350 Seventh Bivd. •

St. Louis, Missouri 63104

Chemists

Engineers

Metallurgists

314/771-7111

Report No. 86-4-43A

May 1, 1986

Examination of eleven (1) water samples submitted 4/3 and 4/5/86.

John Mathes & Associates, Inc. 210 West Sand Bank Rd. P.O. Box 330 Columbia, IL. 62236-0330

Attn: Mr. Rick Bell

TEST REPORT

Sample Identification	Benzene, mg/l	Toluene, mg/l	Xylene, mg/l
25273212 GM 301 4/3/86	8	15	10
25273212 GM 306 4/3/86	*1	*1	*1
25273212 GM 405 4/3/86	*1	*1	*1
25273212 GM 502 4/3/86	14	50	140
25273212 GM 503 4/3/86	*1	*1	*1
25263212 GM 505 4/3/86	18	39	40
25273212 GM 506 4/2/86	3	1	1
25273212 GM 507 4/2/86	*1	*1	*1
25263212 GM 508 4/3/86	*1	*1	*1
25273212 GM 509 4/2/86	*1	*1	*1
25273212 GM 510 4/3/86	17	26	25

*less than.

Respectfully submitted,

INDUSTRIAL TESTING LABORATORIES, INC.

Allan M. Siegel, P.E.

allan M. Augh

Director

Lab No. 66976 LB19365 JWS/bj

Table 6-1

GROUNDWATER SAMPLING ANALYTICAL RESULTS
BENZENE, TOLUENE, AND XYLENE CONCENTRATION (ug/L)

f7=3.3			S	ampling Da	ite		
Well Number	06/22/87	08/12/87	10/26/87	11/16/87	11/19/87	12/29/87	10/04/86
D62	20	65	ND	ND	NA	NA.	NI
GM-405	ND	900	1,207	38	NA.	NA	NI
GM-501	80	7	197	138	NA	NA	NI
GM-504	ND	7	ND	ND	NA.	NA	N
3M -506	13,400	6,976	2,783	1,257	NA	NA	M
3M- 508	50	495	ND	ND	NA	NA	N
GM- 509	110	686	503	9	NA	NA	M
GM-801	18,400	6,914	NA.	605	655	NA	M
GM-802	40	39	3	10	NA	NA.	N
GH-905	23,500	5,238	478	874	NA	NA.	N
GM-906	2,800	5	NA.	1,497	1,166	669	N
34 -907	10,500	844	NA	6 9 6	975	17,340	N
GM-908	22,300	2,312	NA	4,947	11,557	NA	10,500
34 -909	ND	1,311	NA	2,778	7,578	1,266	530
24 -910	16,500	4,578	NA	704	771	180	N
GM-911	39,000	9,500	NA	2,149	2,012	2,539	N
34 −912	1,700	1,818	NA	882	1,147	5,515	N
3 4-913	10,300	6,100	NA	885	1,244	2.775	NI
31 -914	ND	ND	ND	ND	NA.	NA.	1/1
24 –915	14,800	4,381	942	671	NA	NA	IX.
24 –916	NA	NA	14	9	NA	NA.	N
GM-917	. NA	NA	МD	ND	NA.	NA	N
3M -918	NA	NA	2,808	2,114	NA	NA	Ń
21 -919	NA	NA	1,376	179	NA	NA	N
3 4−920	NA	NA	ND	26	NA	NA	N
M -921	NA	NA.	1,453	1,511	NA	NA	660
3 4−922	NA.	NA.	207	ND	NA	NA	M
24 -923 -	NA	NA	ND	NA	NA	NA	N
34 -806	NA	NA	NA	NA	NA	NA	NI

NA Not analyzed.

ND Not detected.

ug/L Micrograms per liter.

Source: John Mathes and Associates, Inc., Status Report, Fourth Quarter 1988, General Motors Wentzville, Gasoline Leak Remediation, February, 1989.

Table 6-2

GROUNDWATER SAMPLING ANALYTICAL RESULTS
TOTAL ORGANIC CARBON CONCENTRATION (mg/L)

Recovery Well Number	Sampling Date										
	06/16/87	10/26/87	11/19/87	12/29/87	01/19/88	02/23/88	03/22/88	04/19/88	07/07/88	10/04/88	
GM-801	4	46	23	12	13	7	8	90	6	4	
GM-906	4.1	16	10	10	14	7	4	8	10	5	
GH-907	7.5	13	17	19	9	12	10	11	10	4	
GH-908	5.4	22	12	NA	20	25	21	19	18	10	
GM-909	3.9	23	7	13	14	8	6	20	14	5	
GM-910	5	13	8	8	9	4	4	5	12	5	
GM-911	3	15	18	15	12	14	8	9	9	4	
GH-912	1.6	19	7	14	7	6	6	11	9	4	
GH-913	1.9	17	ġ	17	NÀ	AN.	NA	NA	NA	4	
GM-806	NA	NA	NA	NA	27	19	13	11	10	5	

mg/L Milligrams per liter.

NA Not analyzed.

Source: John Mathes and Associates, Inc., Status Report, Fourth Quarter 1988, General Motors Wentzville, Gasoline Leak Remediation, February, 1989.

Table 6-3

GROUNDWATER SAMPLING ANALYTICAL RESULTS
TOTAL PETROLEUM HYDROCARBONS CONCENTRATION (mg/L)

Recovery Well Number	Sampling Date											
	06/22/87	08/12/87	10/26/87	11/19/87	12/29/87	01/19/88	02/23/88	03/22/88	04/19/88	07/07/88	10/04/88	
GH-801	7.1	2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	
GM-906	1.6	ND(1.0)	ND(1.0)	` i	ND(1.0)	3	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	
GM-907	9.8	ND(1.0)	ND(1.0)	2	ý	1	ND(1.0)	ND(1.0)	ND(1.0)	NA	ND(1.0)	
GH-908	3.6	. 2	ND(1.0)	11	NA	8	'n	12	10	6	7.8	
GK-909	2.4	1	ND(1.0)	6	ND(1.0)	4	3	ND(1.0)	4	3	3.5	
GM-910	5.2	ND(1.0)	ND(1.0)	ĭ	ND(1.0)	ž	ND(1.0)	ND(1.0)	ND(1.0)	3	1.3	
GH-911	8.1	13	ND(1.0)	5	4	3	1	2	2	NĀ	ND(1.0)	
GH-912	2.9	ND(1.0)	ND(1.0)	3	6	3	ī	3	<u> </u>	2	ND(1.0)	
GM-913	2.7	3	ND(1.0)	3	4	NĀ	NĀ	Ä	NĂ	NĀ	ND(1.0)	
GH-806	NA	NĀ	МÁ	NA	NĀ	5	6	4	6	4	ND(1.0)	

mg/L Milligrams per liter.

NA Not analyzed.

ND(1.0) Not detected, detection limit in parentheses.

Source: John Mathes and Associates, Inc., Status Report, Fourth Quarter 1988, General Motors Wentzville, Gasoline Leak Remediation, February, 1989.

Table 1

GROUNDWATER SAMPLING ANALYTICAL RESULTS BENZENE, TOLUENE, AND XYLENE (BTX) CONCENTRATION (ug/L)

GENERAL MOTORS CORPORATION WENTZVILLE, MISSOURI

Well	•				S	ampling Da	t e					
	22-Jun-67	12-Aug-87	26-Oct-87	16-Nov-87	19-Nov-87	29-Dec-87	04-Oct-88	10-Jan-89	04-Apr-89	18-Jul-89	18-Oct-89	21-Nov-89
D62	20	65		HD	HA	AH	ND	ND	ND	ND	ND	NA NA
GH-405	ND	900	-,	38	NA	NA	ND	ND	ND	ND	ND	NA
GN-501	80	7	197	138	NA	NA	ND	ND	ND	ND	ND	NA
GH-504	ND	7	ND	ND	NA	NA	ND	HD	ND	HD	HD	HA.
GH-506	13,400	6,976	2,783	1,257	NA	NA	ND	ND	ND	ND	. ND	NA NA
GM-508	50	495	ND	ND	NA	AR	ND	3	ND	ND	ND	A M
GM-509	110	686	503	9	NA	NA	ND	ND	ND	ND	ИD	na Na
GH-801	18,400	6,914	NA	605	655	NA	ND	ND	ND	ND	ND	A.N
GH-802	40	39	3	. 10	NA	NA.	ND	ND	ND	4	121	N.A
GM-806	NA	NA	NA.	NA	NA	NA.	ND	HD	ND	ND	ND	HA
GH-905	23,500	5,238	478	874	NA	NA	ND	1	9	ND	1	NA
GH-906	2,800	5	NA	1,497	1,166	669	ND	ND	ND	ND	ND	АИ
GN-907	10,500	844	NA	696	975		ND	ND	ND	ND	ND	NA
GH-908	22,300	2,312	NA	4,947	11,557	NA	10,500	3,200	1,500	200	1,570	1,900
GM-909	ND	1,311		2,778	7.578	1,266	530	1	ND	ND	ND	NA.
GH-910	16,500	4,578		704	771	180	ND	ND	ND		ND	NA
GH-911	39,000	9,500			2,012		ND	ND	ND		ND	NA
GH-912	1,700	1,818		882	1,147	5,515	ND	ND	170	830	159	15
GM-913	10,300	6,100			1,244		ND	ND	ND			N.
GH-914	ND	ND		ND	NA		ND		ND		ND	NA
GM-915	14,800	4,381			NA				14	ND		NJ
GM-916	NA	NA		9	NA.		ND	ND	_ •			NJ
GH-917	NA	NA.		•	NA NA		ND					NJ
GM-918	NA.	NA.		: 2,114	NA NA		ND		ND		•	NJ
GH-919	NA	AN AN	_,	179	NA NA				***		·	-
GM-920	AN AN	NA NA			NA NA		ND					N.
GH-921	NA.	AN				•	660	3	130			NA NA
GH-922		AN	•	I,JII		•	ND	_	ND		• • •	NA NA
GH-923	NA NA	NA NA			NA NA		ND		ND.	ND	ND	N)

NA Not analyzed.

ND Not detected.

ug/L Hicrograms per liter.

12/89/TAB6-1.wk1(3081)3

Source: A.H. Hoffman, John Mathes and Associates, letter to Bill Hayes, General Motors Corp., December 11, 1989.

Table 1

SUMMARY OF
QUARTERLY GROUNDWATER ANALYTICAL RESULTS

		Concentration								
Well Number	Date	Benzene (ug/L)	Toluene (ug/L)	Xylene (u z/L .)	TPH (mg/L)	TOC (mg/L)				
GM-308	16-May-91	ND(1)	ND(1)	ND(1)	ND(0.5)	2				
GM-309	16-May-91	ND(1)	ND(1)	ND(1)	1.4	Ó				
3M-401	16-May-91	ND(1)	ND(1)	ND(1)	DRY	16				
GM-404	16-May-91	ND(1)	ND(1)	ND(1)	3.0	8				
GM-504	16-May-91	ND(1)	ND(1)	ND(1)	19.0	27				
GM-507	16-May-91	ND(1)	ND(1)	ND(1)	0.6	2				
GM-801	16-May-91	ND(1)	ND(1)	ND(1)	ND(0.5)	2				
GM-806	16-May-91	ND(1)	ND(1)	ND(1)	0.6	4				
3M-908	16-May-91	ND(1)	ND(1)	ND(1)	ND(0.5)	6				
GM-912	16-May-91	ND(1)	ND(I)	ND(1)	0.8	2				
GM-914	16-May-91	ND(1)	ND(1)	ND(1)	ND(0.5)	2				
GM-916	16-May-91	NS	NS	NS	N\$	NS				
GM-919	16-May-91	ND(1)	ND(1)	ND(1)	0.7	10				
3M-920	16-May-91	ND(1)	ND(1)	ND(1)	ND(0.5)	4				
GM-921	16-May-91	NS	NS	พร	พร	NS				

DRY Not enough water in well to collect a TPH sample.

mg/L Milligrams per liter.

NS Not sampled.

ND Not detected, detection limit indicated in parentheses.

ug/L Micrograms per liter.

TPH Total petroleum hydrocarbons.

TOC Total organic carbon.

Source: John Mathes and Associates, Inc., Status Report, Second Quarter 1991, General Motors Wentzville, Gasoline Leak Remediation, July, 1991.

Table 1
SUMMARY OF
QUARTERLY GROUNDWATER ANALYTICAL RESULTS

			Concentration									
Well · Number	Date	Benzene (ug/L)	Toluene (ug/L)	Xylene (ug/L)	TPH (mg/L)	TOC (mg/L)						
GM-308	25-Jա-91	ND(1)	ND(1)	№D (1)	ND(0.5)	ND(1)						
GM-309	25-Jul-91	ND(1)	2	ND(1)	0.7	8						
GM-401	24-Jul-91	ND(1)	ND(1)	ND(1)	DRY	25						
GM-404	25-Jul-91	ND(1)	ND(1)	- 1	8.0	ND(1)						
G M-504	24-Jul-91	ND(1)	ND(1)	ND(1)	1.3	2						
GM-507	25-Jul-91	ND(1)	1	ND(1)	5.4	3						
3M-801	24-Jul-91	ND(1)	ND(1)	ND(1)	ND(0.5)	2						
GM-806	24-Jul-91	ND(1)	ND(1)	ND(1)	1.6	3						
3M-908	24-Jul-91	ND(1)	ND(1)	ND(1)	ND(0.5)	4						
3M-912	24-Jul-91	ND(1)	ND(1)	1	8.0	1						
3M-914	24-Jul-91	ND(1)	4	ND(1)	1.0	ND(1)						
3M-916	24-Jul-91	NS	NS	ИЅ	NS	NS						
3M-91 9	24-Jul-91	ND(1)	2	1	0.5	3						
M-920	24-Jul-91	ND(1)	ND(1)	ND(1)	ND(0.5)	4						
GM-921	25-Jul-91	ND(1)	2	ND(1)	ND(0.5)	11						

DRY Not enough water in well to collect a TPH sample.

mg/L Milligrams per liter.

NS Not sampled.

ND Not detected, detection limit indicated in parentheses.

ug/L Micrograms per liter.

TPH Total petroleum hydrocarbons.

TOC Total organic carbon.

Source: A.H. Hoffman, John Mathes and Associates, letter to W.J. Hayes, General Motors Corp., October 15, 1991.